JONES & LAUGHLIN STEEL COMPANY PITTSBURGH LIST OF SHAPES



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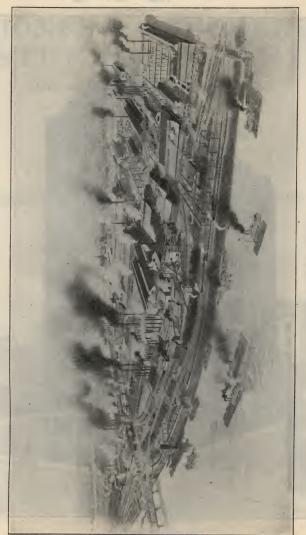
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From the collection of:

Mike Jackson, FAIA



ELIZA FURNAGES AND COKE OVENS



SOUTH SIDE WORKS



GENERAL OFFICES

Geo. Eckland

JONES & LAUGHLIN STEEL COMPANY

AMERICAN IRON & STEEL WORKS

MANUFACTURERS OF

BESSEMER AND OPEN HEARTH

STEEL PRODUCTS

GENERAL OFFICES
PITTSBURGH

OFFICES

15-51-6

GENERAL OFFICES: PITTSBURGH

WAREHOUSES CHICAGO PITTSBURGH

DISTRICT SALES OFFICES

BOSTON
131 State Street

BUFFALO White Building

CHICAGO Lake and Canal Streets

CINCINNATI Union Trust Company Building

> CLEVELAND Kirby Building

DETROIT
Penobscot Building

NEW YORK 165 Broadway

PHILADELPHIA Commercial Trust Building

Jones & Laughlin Building

SAN FRANCISCO Crocker Building

SEATTLE L. C. Smith Building

ST. LOUIS Boatmen's Bank Building

> WASHINGTON Woodward Building

Issued August, 1921

STROTTORIUS

LIST OF WORKS

William Bloomy Water Chart Bern Shelen

ALIQUIPPA WORKS

BY-PRODUCT COKE PLANT

ELIZA FURNACES
AND
COKE OVENS

HAZELWOOD WORKS

KEYSTONE WORKS

SOHO FURNACES AND WORKS

SOUTH SIDE WORKS

AND HAS Person Subdivided

PRODUCTS

OPEN HEARTH AND BESSEMER STEEL

Billets, Blooms, Slabs, Sheet Bars, Skelp, Bands, Flats, Hexagons, Rounds, Squares

RESIDENCE THE PROPERTY OF THE PARTY OF THE P

Bars for Concrete Reinforcement **Cold Twisted Squares** Diamond Bars

Angles

Beams Channels

Tees Zees

Plates for Bridges, Tanks, Boilers, Cars and Ships

Agricultural Shapes Special Shapes Steel Sheet Piling Tie Plates

Light Rails and Accessories WHITE WATER WHITE DRIVE

FABRICATED STRUCTURAL WORK

Columns Girders Trusses Plate Work Steel Barges Mill and Factory Buildings Open Tanks

PRODUCTS

COLD FINISHED STEEL

Shafting and Screw Stock
Rounds Squares Hexagons Flats
Special Shapes
Pump and Piston Rods
Cold Rolled Steel Finger Bars for Mowers
Cold Finished Steel for Axles

FORGED SHAFTS

HOUSE THE BULLDER BUTTON

RAILROAD SPIKES
BOAT AND BARGE SPIKES

PIPE, COUPLINGS
TUBULAR PRODUCTS

WIRE

Annealed Wire Barbed Wire Galvanized Wire
Nail Wire Spring Wire
Fence Staples Netting Staples Woven Fencing
Wire Rods Wire Nails

TIN PLATE
Black Sheets
(Tin Mill sizes)

COKE BY-PRODUCTS

WE HAVE CATALOGUES OF

HERODOGES.

COLD FINISHED PRODUCTS

THE PERSON NAMED IN COLUMN TWO IS NOT THE OWNER.

WIRE

WIRE NAILS

WIRE PRODUCTS

WOVEN FENCING

COLUMN THE PARTY OF THE PARTY O

TIN PLATE
Black Sheets
(Tin Mill Sizes)

STEEL SHEET PILING

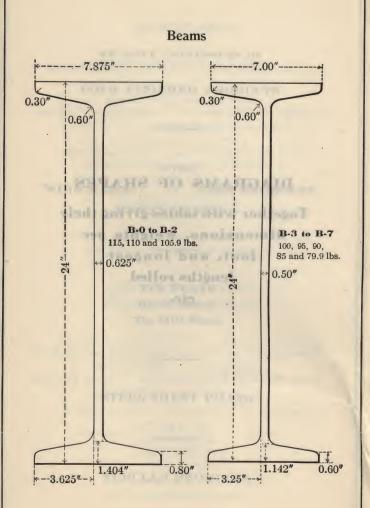
STRAIN SITE

Annesing Man, Series Polym Separation to me Note Wise Surple Wire Polym

TUBULAR PRODUCTS

DIAGRAMS OF SHAPES

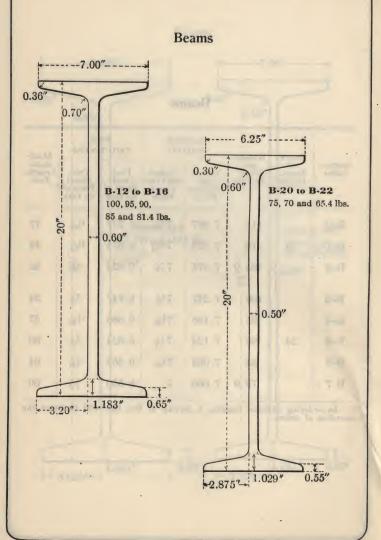
Together with tables giving their dimensions, weights per foot, and longest lengths rolled etc.



Beams

Depth		Weight, WID			WI		Maxi-	
Section Index	of Beam, Inches	per Foot, Pounds	Inches and Decimal Parts	Inches and Frac- tional Parts	Deci- mal Parts of an Inch	Frac- tional Parts of an Inch	mum Length, Feet	
В-0		115	7.987	763/64	0.737	47/64	47	
В-1	24	110	7.925	759/64	0.675	43/64	49	
B-2		105.9	7.875	77/8	0.625	5/8	52	
D o		100			0 - 1-			
B-3	2010	100	7.247	$7\frac{1}{4}$	0.747	3/4	54	
B-4		95	7.186	73/16	0.686	11/16	57	
В-5	. 24	90	7.124	71/8	0.624	5/8	. 60	
В-6		85	7.063	71/16	0.563	9/16	64	
B- 7		79.9	7.000	7	0.500	1/2	69	

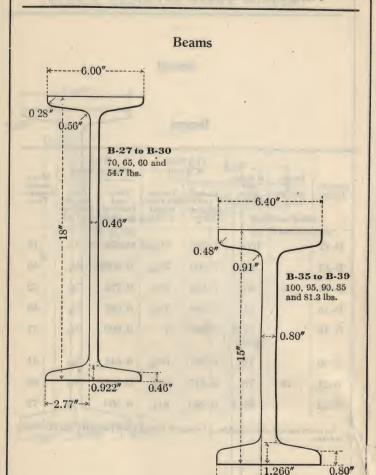
In ordering extreme lengths, a leeway of five feet will facilitate the execution of orders.



Beams

Section Depth		Weight,	FLANGE WIDTH		WEB THICKNESS		Maxi-	
Index	of Beam, Inches	Foot, Pounds	Inches and Decimal Parts	Inches and Frac- tional Parts	Deci- mal Parts of an Inch	Frac- tional Parts of an Inch	mum Length, Feet	
B-12	-	100	7.273	71764	0.873	7/8	46	
B-13	32-u	95	7.200	713%4	0.800	51/64	49	
B-14	20	90	7.126	71/8	0.726	23/32	52	
B-15		85	7.053	73/64	0.653	21/32	55	
B 16	*08.0	81.4	7.000	7	0.600	19/32	. 57	
B-20		75	6.391	62564	0.641	41/64	61	
B-21	20	70	6.317	65/16	0.567	9/16	66	
B-22		65.4	6.250	61/4	0.500	1/2	72	

In ordering extreme lengths, a leeway of five feet will facilitate the execution of orders.

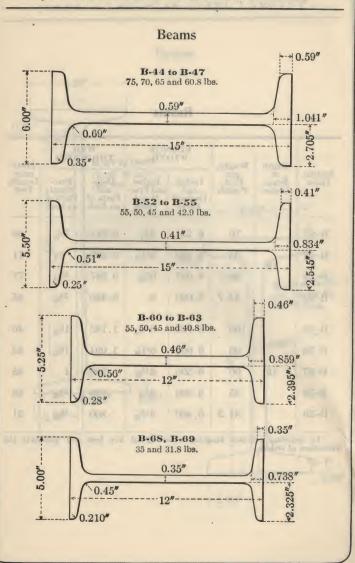


←2.80″→

Beams

Depth		Weight,		FLANGE WIDTH		WEB THICKNESS	
Section Index	of Beam, Inches	Pounds	Inches and Decimal Parts	Inches and Frac- tional Parts	Deoi- mal Parts of an Inch	Frac- tional Parts of an Inch	mum Length, Feet
B-27	11	70	6.251	61/4	0.711	23/32	66
В-28	10	65	6.169	611/64	0.629	5/8	71
B-29	18	60	6.087	63/32	0.547	35/64	77
B-30		54.7	6.000	6	0.460	29/64	85
B-35	П	100	6.792	651/64	1.192	13/16	40
В 36		95	6.694	611/16	1.094	13/32	42
B-37	15	90	6.596	619/32	.996	1	45
В-38		85	6.498	6½	.898	29/32	48
В-39		81.3	6,400	613/32	.800	51/64	51

In ordering extreme lengths, a leeway of five feet will facilitate the execution of orders.

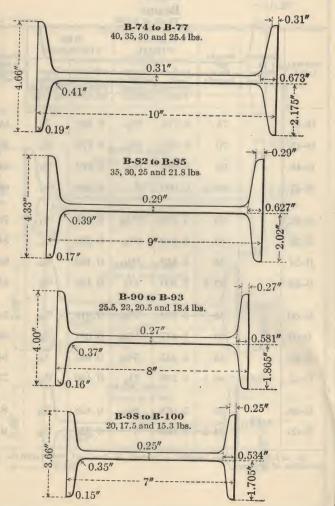


Beams

Depth		Weight,	FLAI WII		WEB THICKNESS		Maxi-	
Section of Beam, Inches	per Foot, Pounds	Inches and Decimal Parts	Inches and Frac- tional Parts	Deci- mal Parts of an Inch	Fractional Parts of an Inch	mum Length, Feet		
B-44		75	6.278	69/32	0.868	7/8	55	
B-45	1 1 2	70	6.180	63/16	0.770	49/64	59	
B-46	15	65	6.082	65/64	0.672	43/64	63	
B-47	11	60.8	6.000	6	0.590	19/32	69	
B-52	19 1	55	5.738	547/64	0.648	41/64	76	
В-53		50	5.640	541/64	0.550	35/64	84	
В-54	15	45	5.542	535/64	0.452	29/64	93	
B-55	TEO.	42.9	5.500	51/2	0.410	13/32	95	
B-60		55	5.600	519/32	0.810	13/16	54	
B-61	100	50	5.477	531/64	0.687	11/16	60	
B-62	12	45	5.355	523/64	0.565	9/16	64	
B-63	91	40.8	5.250	51/4	0.460	29/64	73	
B-68	10	35	5.078	55/64	0.428	27/64	84	
B-69	12	31.8	5.000	5	0.350	11/32	94	

In ordering extreme lengths, a leeway of five feet will facilitate the execution of orders.





Beams

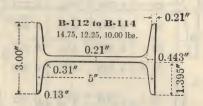
Depth		Weight,	FLANGE WIDTH		WEB THICKNESS		Maxi-	
Section of Beam, Inches	per Foot, Pounds	Inches and Decimal Parts	Inches and Frac- tional Parts	Deci- mal Parts of an Inch	Fractional Parts of an Inch	mum Length, Feet		
B- 74	-	40	5.091	53/32	0.741	47/64	80	
В- 75	10	35	4.944	415/16	0.594	19/32	90	
В- 76	10	30	4.797	451/64	0.447	29/64	100	
В- 77		25.4	4.660	421/32	0.310	5/16	100	
B- 82		35	4.764	44964	0.724	23/32	90	
B- 83		30	4.601	419/32	0.561	9/16	100	
B- 84	9	25	4.437	47/16	0.397	25/64	100	
В- 85	1 1	21.8	4.330	421/64	0.290	19/64	100	
B- 90		25.5	4.262	417/64	0.532	17/32	90	
B- 91		23	4.171	411/64	0.441	7/16	100	
B- 92	. 8	20.5	4.079	45/64	0.349	11/32	100	
B- 93		18.4	4.000	4	0.270	17/64	100	
В- 98	3	20	3.860	355/64	0.450	29/64	90	
B- 99	7	17.5	3.755	33/4	0.345	11/32	100	
B-100		15.3	3.660	321/32	0.250	1/4	100	

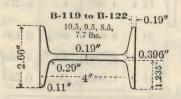
In ordering extreme lengths, a leeway of five feet will facilitate the execution of orders.

NOTE.—Lengths over 75 feet are made only by special arrangement.

Beams







Health

Beams

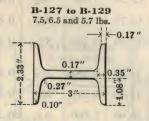
Donat	Depth	Weight,	FLAI		WEB THICKNESS		Maxi-	
Section Index	of Beam, Inches	per Foot, Pounds	Inches and Decimal Parts	Inches and Frac- tional Parts	Deci- mal Parts of an Inch	Frac- tional Parts of an Inch	mum Length, Feet	
B-105		17.25	3.565	39/16	0.465	15/32	90	
B-106	6	14.75	3.443	37/16	0.343	11/32	100 .	
B-107		12.50	3.330	321/64	0.230	15/64	100	
В-112		14.75	3.284	3%2	0.494	1/2	90	
B-113	5	12.25	3.137	3%4	0.347	11/32	100	
B-114		10.00	3.000	3	0.210	13/64	100	
B-119		10.5	2.870	27/8	0.400	13/32	50	
B-120		9.5	2.796	251/64	0.326	21/64	55	
В-121	4	8.5	2.723	223/32	0.253	1/4	65	
B-122		7.7	2.660	221/32	0.190	3/16	65	

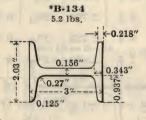
 $\ensuremath{\mathrm{In}}$ ordering extreme lengths, a leeway of five feet will facilitate the execution of orders.

NOTE.—Lengths over 75 feet are made only by special arrangement.

Beams

*B-125 5.8 lbs, 0.17" 0.35" 0.35" 0.10"





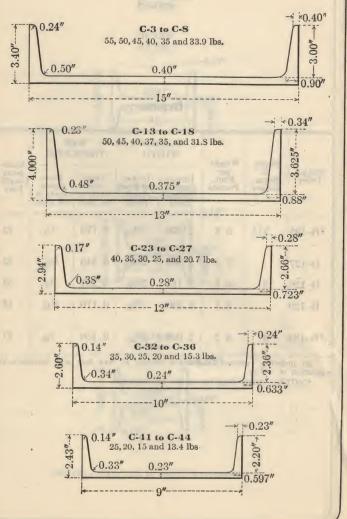
*NOTE.-Made only by special arrangement.

Beams

	Depth	Weight,	FLANGE WIDTH		WE	Maxi-	
Section Index	of Beam, Inches	per Foot, Pounds	Inches and Decimal Parts	Inches and Frac- tional Parts	Deci- mal Parts of an Inch	Frac- tional Parts of an Inch	mum Length Feet
*B-125	3½	5.8	2.330	221/64	0.170	11/64	42
B-127		7.5	2.509	233/64	0.349	11/32	33
B-128	3	6.5	2.411	213/32	0.251	1/4	38
B-129		5.7	2.330	221/64	0.170	11/64	45
*B-134	3	5.2	2.030	21/32	0.156	5/32	47

In ordering extreme lengths, a leeway of five feet will facilitate the execution of orders. *NOTE.—Made only by special arrangement.

Channels



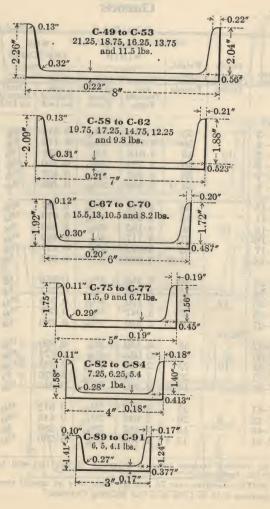
Channels

	Depth	Weight,	FLAI WIE		THICK		Maxi-
Section of Channel, Inches	per Foot, Pounds	Inches and Decimal Parts	Inches and Frac- tional Parts	Deci- mal Parts of an Inch	Fractional Parts of an Inch	mum Length, Feet	
C- 3 C- 4 C- 5 C- 6 C- 7 C- 8	15	55 50 45 40 35 33.9	3.814 3.716 3.618 3.520 3.422 3.400	$ \begin{array}{r} 3^{13}/_{16} \\ 3^{23}/_{32} \\ 3^{5}/_{8} \\ 3^{33}/_{64} \\ 3^{27}/_{64} \\ 3^{13}/_{32} \end{array} $	0.814 0.716 0.618 0.520 0.422 0.400	13/16 23/32 5/8 33/64 27/64 13/32	75 84 95 95 95 95
C-13 C-14 C-15 C-16 C-17 C-18	13	50 45 40 37 35 31.8	4.412 4.298 4.185 4.117 4.072 4.000	41332 41964 4316 4764 4564 4	0.787 0.673 0.560 0.492 0.447 0.375	25/32 43/64 9/16 31/64 29/64 3/8	64 72 80 86 93 95
C-23 C-24 C-25 C-26 C-27	12	40 35 30 25 20.7	3.415 3.292 3.170 3.047 2.940	$\begin{array}{r} 3^{27}_{64} \\ 3^{19}_{64} \\ 3^{11}_{64} \\ 3^{3}_{64} \\ 2^{15}_{16} \end{array}$	0.755 0.632 0.510 0.387 0.280	3/4 5/8 33/64 25/64 9/32	80 89 95 95 95
C-32 C-33 C-34 C-35 C-36	10	35 30 25 20 15.3	3.180 3.033 2.886 2.739 2.600	$\begin{array}{c} 3\frac{3}{16} \\ 3\frac{1}{32} \\ 2\frac{57}{64} \\ 2\frac{47}{64} \\ 2\frac{19}{32} \end{array}$		13/16 43/64 17/32 3/8 15/64	75 85 100 100 100
C-41 C-42 C-43 C-44		$ \begin{array}{c} 25 \\ 20 \\ 15 \\ 13.4 \end{array} $	2.812 2.648 2.485 2.430	$ \begin{array}{r} 2^{13}_{16} \\ 2^{41}_{64} \\ 2^{31}_{64} \\ 2^{7}_{16} \end{array} $	$\begin{array}{c} 0.612 \\ 0.448 \\ 0.285 \\ 0.230 \end{array}$	39/64 29/64 9/32 15/64	75 85 100 100

In ordering extreme lengths, a leeway of five feet will facilitate the execution of orders.

NOTE.—Lengths over 75 feet are made only by special arrangement. Sections C-13 to C-18, inc., Car Building Channels.

Channels



Channels

Depth		Weight,	FLA: WII		WEB THICKNESS		Maxi-	
Section of Channel, Inches	per Foot, Pounds	Inches and Decimal Parts	Inches and Frac- tional Parts	Deci- mal Parts of an Inch	Frac- tional Parts of an Inch	mum Length, Feet		
C-49 C-50 C-51 C-52 C-53	8	21.25 18.75 16.25 13.75 11.5	2.619 2.527 2.435 2.343 2.260	$\begin{array}{c} 2^{5/8} \\ 2^{17/32} \\ 2^{7/16} \\ 2^{11/32} \\ 2^{17/64} \end{array}$	0.579 0.487 0.395 0.303 0.220	37 ₆₄ 31 ₆₄ 25 ₆₄ 19 ₆₄ 7 ₃₂	90 100 100 100 100	
C- 5 8 C- 5 9 C- 6 0 C- 6 1 C- 6 2	7	19.75 17.25 14.75 12.25 9.8	2.509 2.404 2.299 2.194 2.090	$\begin{array}{r} 2^{33}_{64} \\ 2^{13}_{32} \\ 2^{19}_{64} \\ 2^{3}_{16} \\ 2^{3}_{32} \\ \end{array}$	0.629 0.524 0.419 0.314 0.210	5/8 17/32 27/64 5/16 13/64	100 100 100 100 100	
C-67 C-68 C-69 C-70	6	15.5 13 10.5 8.2	2.279 2.157 2.034 1.920	$ \begin{array}{r} 29\%_{32} \\ 25\%_{32} \\ 21\%_{32} \\ 159\%_{4} \end{array} $	0.559 0.437 0.314 0.200	9/16 7/16 5/16 13/64	90 100 100 100	
C-75 C-76 C-77	5	$ \begin{array}{c} 11.5 \\ 9 \\ 6.7 \end{array} $	2.032 1.885 1.750	$\begin{array}{c} 2\frac{1}{32} \\ 1\frac{57}{64} \\ 1\frac{3}{4} \end{array}$	0.472 0.325 0.190	15/32 21/64 3/16	65 65 65	
C-82 C-83 C-84	4	7.25 6.25 5.4	1.720 1.647 1.580	$\begin{array}{c} 1^{23}_{32} \\ 1^{41}_{64} \\ 1^{37}_{64} \end{array}$	0.320 0.247 0.180	5/16 1/4 3/16	65 65 65	
C-89 C-90 C-91	3	6 5 4.1	1.596 1.498 1.410	$\begin{array}{c} 1^{19} {}_{32} \\ 1^{1} {}_{2} \\ 1^{13} {}_{32} \end{array}$	0.356 0.258 0.170	23/64 1/4 11/64	42 50 50	

In ordering extreme lengths, a leeway of five feet will facilitate the execution of orders.

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SHIP BUILDING CHANNELS

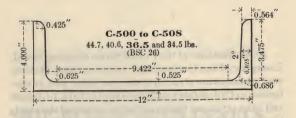
American Standards as Adopted by Steel Makers November 19, 1918 Sine Building Channels

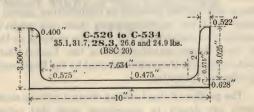
STREET, SQ. PROPERTY.

At the instance of the United States Shipping Board, Emergency Fleet Corporation, American Steel Makers, who manufacture structural steel for ships, met in conference in Philadelphia on November 19, 1918, to discuss and take action on the report of the proposed standardization of rolled steel shapes for Emergency Fleet Corporation hulls. At that conference the steel manufacturers, in the interest of standard practice, the widest possible use of sections rolled in the United States and further economy in manufacture, agreed to make whatever modifications in their rolls might be necessary to standardize ship building sections, so that all such shapes manufactured in the United States shall conform to the profiles adopted by the Engineering Standards Committee.

The profiles of ship building channel sections shown herein are drawn in accordance with that action. Orders for such ship building channels should conform to the weights and dimensions indicated on the following pages.

Ship Building Channels Standard Sections







Ship Building Channels Standard Sections

Ship Building Clarencie

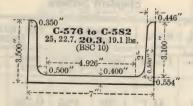
Section	Depth	Weight,	FLANGE WIDTH, INCHES		WEB THICKNESS, INCHES		Maxi- mum Length,	
Index	Index Channel, Inches	Foot, Pounds	Deci- mal	Frac- tional	Deci- mal	Frac- tional	Feet	
C500	12	44.7	4.200	413/64	0.725	23/32	75	
C502	12	40.6	4.100	43/32	0.625	5/8	75	
C 506	- 12	36.5	4.000	4	0.525	17/32	75	
C508	12	34.5	3.950	361/64	0.475	15/32	75	
		1000		Name of	1.00		10	
C526	10	35.1	3.700	345/64	0.675	43/64	75	
C528	10	31.7	3.600	319/32	0.575	37/64	75	
C 530	10	28.3	3.500	31/2	0.475	15/32	75	
C532	10	26.6	3,450	329/64	0.425	27/64	75	
C534	10	24.9	3.400	313/32	0.375	3/8	75	
C558	8	28.2	3.700	345/64	0.625	5/8	75	
C560	8	25.5	3.600	319/32	0.525	17/32	75	
C 562	8	22.8	3.500	31/2	0.425	27,64	75	
C564	8	21.4	3.450	329/64	0.375	3/8	75	
		1	120					

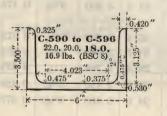
Greater lengths may be had in some cases by special arrangement.

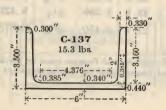
Dimensions and properties of the British Standard Sections are indicated in bold type.

Ship Building Channels

Standard Sections







Ship Building Channels Standard Sections

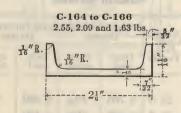
Section Depth of		weight, INC				CKNESS, HES	Maxi- mum
Index	Channel, Inches	Foot, Pounds	Deci- mal	Frac- tional	Deci- mal	Frac- tional	Length, Feet
		- 43					
C576	7	25.0	3.700	345/64	0.600	19/32	75
C578	7	22.7	3.600	319/32	0.500	1/2	75
C 580	7	20.3	3.500	31/2	0.400	13/32	75
C582	7	19.1	3.450	329/64	0.350	11/32	75
		100			FL	1751-0	П
C590	6	22.0	3.700	345/64	0.575	37/64	75
C592	6	20.0	3.600	319/32	0.475	15/32	75
C 594	6	18.0	3.500	31/2	0.375	3/8	75
C596	6	16.9	3.450	329/64	0.325	21/64	75
				1			13
C137	6	15.3	3.500	31/2	0.340	11/32	75
					1777	3 = 1 = 7 1	LI.

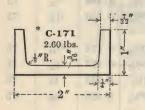
Greater lengths may be had in some cases by special arrangement.

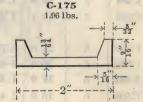
Dimensions and properties of the British Standard Sections are indicated in bold type.

Special Channels

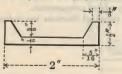




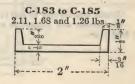




C-176 to C-178 2.26, 1.84 and 1.41 lbs.



*Rolled only in Bessemer steel.

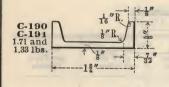


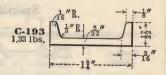
Special Channels

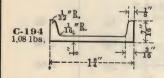
				1000
Section Index	Size of Section, Inches	Width of Flange, Inches	Thickness of Web, Inches	Weight, per Foot, Pounds
C-159	21/4	3/4	1/2	4.3
C-164	21/6	13/16	1/4	2.55
C-165	21/6	3/4	3/16	2.09
C-166	21/6	11/16	1/8	1.63
*C-171	2	1	3/16	2.60
C-175	2	9/16 .	13/64	1.96
0-175	2	716 .	64	1.00
C-176	2	5/8	1/4	2.26
C-177	2	9/16	3/16	1.84
C-178	2	1/2	1/8	1.41
C-183	2	5/8	1/4	2.11
C-184	2	9/16	3/16	1.68
C-185	2	1/2	1/8	1.26

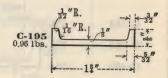
^{*}Rolled only in Bessemer steel.

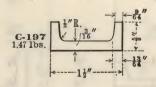
Special Channels

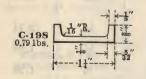


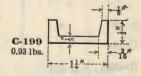


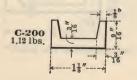


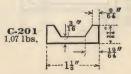










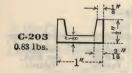


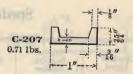
Special Channels

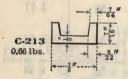
Section Index	Size of Section, Inches	Width of Flange, Inches	Thickness of Web, Inches	Weight, per Foot, Pounds
C-190	13/4	11/16	3/16	1.71
C-191	13/4	5/8	1/8	1.33
C-193	13/4	17/32	5/32	1.33
C-194	13/4	7/16	1/8	1.08
C-195	13/4	3/8	1/8	.96
C-197	1½	5/8	3/16	1.47
C-198	11/4	3/8	. 1/8	.79
C-199	11/4	1/2	1/8	.93
C-200	11/8	%16	3/16	1.12
C-201	11/8	27/64	3/16	1.07
			1	

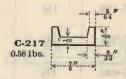
KITSON.

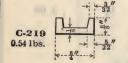
Special Channels

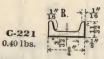






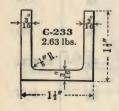


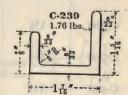


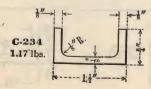




Box Channels







Special Channels

Section Index	Size of Section, Inches	Width of Flange, Inches	Thickness of Web, Inches	Weight, per Foot, Pounds
C-203	1	1/2	1/8	.83
C-207	1	25/64	1/8	.71
C-213	7/8	7/16	1/8	.66
C-217	7/8	3/8	1/8	.58
C-219	3/4	3/8	1/8	. 54
C-221	3/4	11/32	3/32	.40
C-223	5/8	5/16	1/8	.43

Box Channels

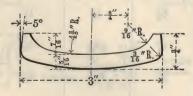
Section Index	Size of Section, Inches	Width of Flange, Inches	Thickness of Web, Inches	Weight, per Foot, Pounds
C-233	1½	11/2	3/16	2.63
C-234	1½	. 3/4	1/8	1.17
C-239	17/16	15/16 & 7/8	5/32	1.76

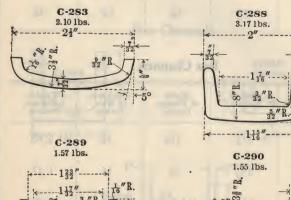
Bevel Back Channel



Round Back Channels

C-281 3.84 lbs.





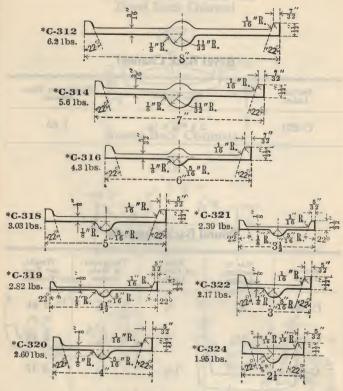
Bevel Back Channel

Section Index	Size, Inches	Weight per Foot, Pounds
C-273	2 x 35/64 x 3/16	1.65

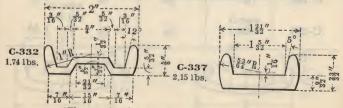
Round Back Channels

Section Index	Size of Section, Inches	Width of Flange, Inches	Thickness of Web, Inches	Weight, per Foot, Pounds
C-281	3	3/4	5/16	3.84
C-283	2½	5/8	7/82	2.10
C-288	2	11/8	5/16	3.17
C-289	2	25/64	3/16	1.57
C-290	2	9/16	3/16	1.55

Special Beaded Channels



Special Tire Channels



Special Beaded Channels

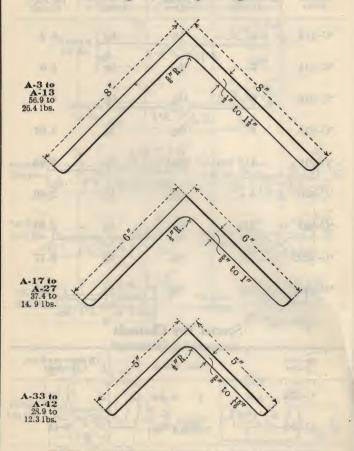
Section Index	Size of Section,	Width of Flange, Inches	Thickness of Web, Inches	Weight, per Foot, Pounds
*C-312	8	11/32	3/16	6.2
*C-314	7	11/32	3/16	5.6
*C-316	6	11/32	· 5/32	4.3
*C-318	5	11/32	1/8	3.03
*C-319	4½	11/32	1/8	2.82
*C-320	4	11/32	1/8	2.60
*C-321	3½	11/32	1/8	2.39
*C-322	3	11/32	1/8	2.17
*C-324	2½	11/32	1/8	1.95

Special Tire Channels

Section Index	Size, Inches	Weight per Foot, Pounds
C-332	2 x ½	1.74
C-337	1 ²¹ / ₈₂ x ²³ / ₃₂	2.15

^{*}These sections have been inserted for reference only.

Angles with Equal Legs



Angles with Equal Legs

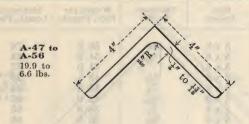
Sections appearing in bold-face type adopted as standard by the Association of American Steel Manufacturers, for bridge, car, ship and general building construction.

Section	Size,	Thickness,	Weight per	Maximum
Index	Inches	Inches	Foot, Pounds	Length, Feet
A- 3 A- 4 A- 5 A- 6 A- 7 A- 8 A- 9 A-10 A-11 A-12 A-13	8 x 8 8 x 8	1 ½8 1 ½6 1 1 15,16 7,8 13,16 3,4 11,16 5,8 9,16 1,2	56.9 54.0 51.0 48.1 45.0 42.0 38.9 35.8 32.7 29.6 26.4	78 83 87 95 95 95 95 95 95 95 95
A-17 A-18 A-19 A-20 A-21 A-22 A-23 A-24 A-25 A-26 A-27	6 x 6 6 x 6	1 15/16 7/8 13/16 3/4 11/16 5/8 9/16 1/2 7/16 3/8	37.4 35.3 33.1 31.0 28.7 26.5 24.2 21.9 19.6 17.2 14.9	100 100 100 100 100 100 100 100 100 100
A-33	5 x 5	15/16	28.9	100
A-34	5 x 5	7/8	27.2	100
A-35	5 x 5	13/16	25.4	100
A-36	5 x 5	3/4	23.6	100
A-37	5 x 5	11/16	21.8	100
A-38	5 x 5	5/8	20.0	100
A-39	5 x 5	9/16	18.1	100
A-40	5 x 5	1/2	16.2	100
A-41	5 x 5	7/16	14.3	100
A-42	5 x 5	3/8	12.3	100

In ordering extreme lengths, a leeway of five feet will facilitate the execution of orders.

NOTE.—Lengths over 75 feet are made only by special arrangement.

Angles with Equal Legs



A-61 to A-70 17.1 to 5.8 lbs.



A-80 to A-88 14.7 to 5.4 lbs.

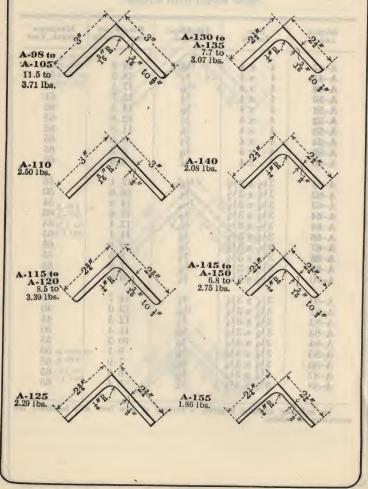


Angles with Equal Legs

Section Index	Size, Inches	Thickness, Inches	Weight per Foot, Pounds	Maximum Length, Feet
A-47 A-48 A-49 A-50 A-51 A-52 A-53 A-54 A-55 A-56	4 x 4 4 x 4	13/16 3/4 11/16 5/8 9/16 1/2 7/16 3/8 5/16	19.9 18.5 17.1 15.7 14.3 12.8 11.3 9.8 8.2 6.6	50 52 56 61 65 65 65 65 65
A-61 A-62 A-63 A-64 A-65 A-66 A-67 A-68 A-69 A-70	3½ x 3½ 3½ x 3½	13/16 3/4 11/16 5/8 9/16 1/2 7/16 3/8 6/16	17.1 16.0 14.8 13.6 12.4 11.1 9.8 8.5 7.2 5.8	46 50 54 60 65 65 65 65 65 65
A-80 A-81 A-82 A-83 A-84 A-85 A-86 A-87 A-88	3¼ x 3¼ 3¼ x 3¼	3/4 11/6 5/8 9/16 1/2 7/16 3/8 5/8	14.7 13.6 12.5 11.4 10.2 9.1 7.9 6.6 5.4	35 40 44 50 55 60 65 65 65

In ordering extreme lengths, a leeway of five feet will facilitate the execution of orders.

Angles with Equal Legs

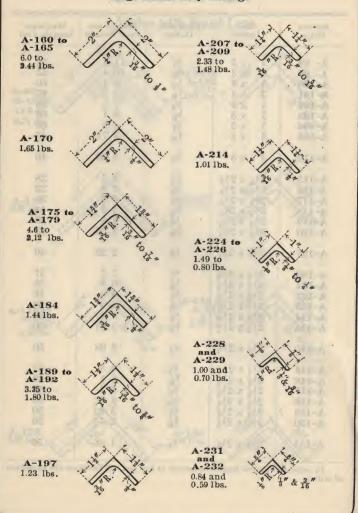


Angles with Equal Legs

Section Index	Size, Inches	Thickness, Inches	Weight per Foot, Pounds	Maximum Length, Feet
A- 98 A- 99 A-100 A-101 A-102 A-103 A-104 A-105	3 x 3 3 x 3	5/8 9/16 1/2 7/16 3/8 5/16 1/4 8/16	11.5 10.4 9.4 8.3 7.2 6.1 4.9 3.71	50 55 60 65 65 65 65 45
A-110	3 x 3	1/8	2.50	40
A-115 A-116 A-117 A-118 A-119 A-120	234 x 234 234 x 234 234 x 234 234 x 234 234 x 234 234 x 234	1/2 716 3/8 5/16 1/4 3/16	8.5 7.6 6.6 5.6 4.5 3.39	28 32 38 44 50 50
A-125	2¾ x 2¾	1/8	2.29	40
A-130 A-131 A-132 A-133 A-134 A-135	2½ x 2½ 2½ x 2½	1/2 7/16 3/8 5/16 1/4 8/16	7.7 6.8 5.9 5.0 4.1 3.07	31 35 40 50 50 50
A-140	2½ x 2½	1/8	2.08	50
A-145 A-146 A-147 A-148 A-149 A-150	2½ x 2½ 2½ x 2½ 2½ x 2½ 2½ x 2½ 2½ x 2½ 2½ x 2½ 2½ x 2½	1/2 7/16 3/8 5/16 1/4 3/16	6.8 6.1 5.3 4.5 3.62 2.75	35 40 45 50 50 50
A-155	21/4 x 21/4	1/8	1.86	50

In ordering extreme lengths, a leeway of five feet will facilitate the execution of orders.

Angles with Equal Legs

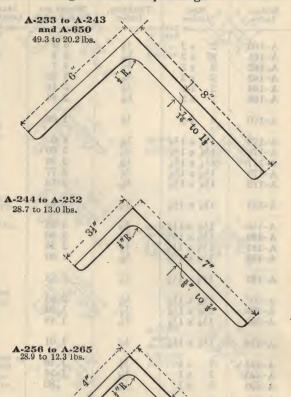


Angles with Equal Legs

Section Index	Size, Inches	Thickness, Inches	Weight per Foot, Pounds	Maximum Length, Feet
A-160 A-161 A-162 A-163 A-164 A-165	2 x 2 2 x 2 2 x 2 2 x 2 2 x 2 2 x 2 2 x 2	1/2 7/16 3/8 5/16 1/4 3/16	6.0 5.3 4.7 3.92 3.19 2.44	45 45 45 50 50 50
A-170	2 x 2	1/8	1.65	50
A-175 A-176 A-177 A-178 A-179	134 x 134 134 x 134 134 x 134 134 x 134 134 x 134 134 x 134	7 16 3/8 5 16 1/4 3/16	4.6 3.99 3.39 2.77 2.12	35 35 35 35 35 35
A-184	1¾ x 1¾	1/8	1.44	35
A-189 A-190 A-191 A-192	1½ x 1½ 1½ x 1½ 1½ x 1½ 1½ x 1½ 1½ x 1½	3/8 5/16 1/4 3/16	3.35 2.86 2.34 1.80	35 35 35 35
. A-197	1½ x 1½	1/8	1.23	35
A-207 A-208 A-209	1¼ x 1¼ 1¼ x 1¼ 1¼ x 1¼	5/16 1/4 3/16	2.33 1.92 1.48	35 35 35
A-214	1¼ x 1¼	1/8	1.01	35
A-224 A-225 A-226	1 x 1 1 x 1 1 x 1	1/4 - 8/16 1/8	1.49 1.16 .80	45 45 45
A-228 A-229	7/8 x 7/8 7/8 x 7/8	3/16 1/8	1.00 .70	45 45
A-231 A-232	3/4 x 3/4 3/4 x 3/4	3/16 1/8	.84	45 45

In ordering extreme lengths, a leeway of five feet will facilitate the execution of orders.

Angles with Unequal Legs



Angles with Unequal Legs

Sections appearing in bold-face type adopted as standard by the Association of American Steel Manufacturers, for bridge, car, ship and general building construction.

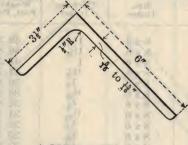
Section Index	Size, Inches	Thickness, Inches	Weight per Foot, Pounds	Maximum Length, Feet
A-233 A-234 A-235 A-236 A-237 A-238 A-239 A-240 A-241 A-242 A-243 A-650	8 x 6 8 x 6	11/8 11/16 1 15/66 7/8 19/16 3/4 11/16 5/8 9/16	49.3 46.8 44.2 41.7 39.1 36.5 33.8 31.2 28.5 25.7 23.0 20.2	80 85 90 95 95 95 95 95 95 95
A-244 A-245 A-246 A-247 A-248 A-249 A-250 A-251 A-252	7 x 3½ 7 x 3½	7/8 13/6 3/4 11/6 5/8 1/6 1/2 7/6 3/8	28.7 26.8 24.9 23.0 21.0 19.1 17.0 15.0 13.0	79 86 95 95 95 95 95 95 95
A-256 A-257 A-258 A-259 A-260 A-261 A-262 A-263 A-264 A-265	6 x 4 6 x 4	15/16 7/8 13/16 3/4 11/16 5/8 9/16 1/2 7/16 3/8	28.9 27.2 25.4 23.6 21.8 20.0 18.1 16.2 14.3 12.3	75 80 90 100 100 100 100 100 100

In ordering extreme lengths, a leeway of five feet will facilitate the execution of orders.

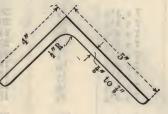
NOTE.—Lengths over 75 feet are made only by special arrangement.

Angles with Unequal Legs

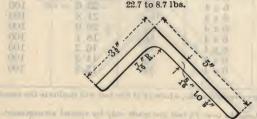
A-271 to A-281 27.3 to 9.8 lbs.



A-285 to A-293 24.2 to 11.0 lbs.



A-298 to A-307 22.7 to 8.7 lbs.



10E 1/A

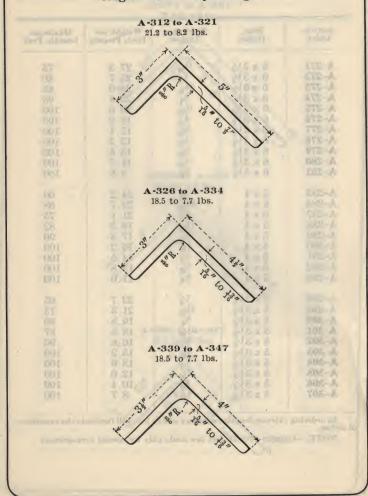
Angles with Unequal Legs

Section Index	Size, Inches	Thickness, Inches	Weight per Foot, Pounds	Maximum Length, Feet
A-271 A-272 A-273 A-274 A-275 A-276 A-277 A-278 A-279 A-280 A-281	6 x 3½ 6 x 3½	15/6 7/8 15/6 3/4 11/16 5/8 9/16 1/2 7/16 3/8	27.3 25.7 24.0 22.4 20.6 18.9 17.1 15.3 13.5 11.7 9.8	75 80 85 95 100 100 100 100 100 100 100
A-285 A-286 A-287 A-288 A-289 A-290 A-291 A-292 A-293	5 x 4 5 x 4	78 13/16 3/4 11/16 5/8 9/16 1/2 7/16	24.2 22.7 21.1 19.5 17.8 16.2 14.5 12.8 11.0	60 68 75 82 90 100 100 100
A-298 A-299 A-300 A-301 A-302 A-303 A-304 A-305 A-306 A-307	5 x 3 ½ 5 x 3 ½	7/8 13/16 3/4 11/16 5/8 9/16 3/8 5/16	22.7 21.3 19.8 18.3 16.8 15.2 13.6 12.0 10.4 8.7	65 73 80 87 90 100 100 100 100

In ordering extreme lengths, a leeway of five feet will facilitate the execution of orders.

NOTE.—Lengths over 75 feet are made only by special arrangement.

Angles with Unequal Legs



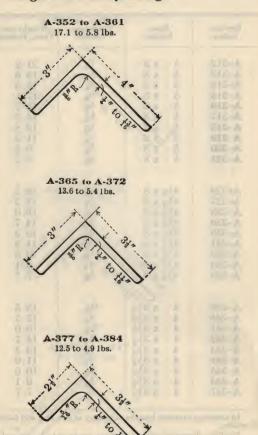
Angles with Unequal Legs

Section	Size,	Thickness,	Weight per	Maximum
Index	Inches	Inches	Foot, Pounds	Length, Feet
A-312 A-313 A-314 A-315 A-316 A-317 A-318 A-319 A-320 A-321	5 x 3 5 x 3	78 1316 3/4 11/16 5/8 9/16 1/2 7/16 3/8 5/16	21.2 19.9 18.5 17.1 15.7 14.3 12.8 11.3 9.8 8.2	65 75 82 90 97 100 100 100 100
A-326	4½ x 3	13/16	18.5	44
A-327	4½ x 3	3/4	17.3	46
A-328	4½ x 3	11/16	16.0	50
A-329	4½ x 3	5/8	14.7	54
A-330	4½ x 3	9/16	13.3	60
A-331	4½ x 3	1/2	11.9	65
A-332	4½ x 3	7/16	10.6	65
A-333	4½ x 3	3/8	9.1	65
A-334	4½ x 3	5/16	7.7	65
A-339 A-340 A-341 A-342 A-343 A-344 A-345 A-346 A-347	4 x 3 ½ 4 x 3 ½	13/6 3/4 11/6 5/8 9/16 1/2 7/16 3/8	18.5 17.3 16.0 14.7 13.3 11.9 10.6 9.1 7.7	44 46 50 54 60 65 65 65 65

In ordering extreme lengths, a leeway of five feet will facilitate the execution of orders.

NOTE.—Lengths over 75 feet are made only by special arrangement.

Angles with Unequal Legs



Angles with Unequal Legs

Angles With Unequal Legs

		100000		33.11.11.0
Section Index	Size, Inches	Thickness, Inches	Weight per Foot, Pounds	Maximum Length, Feet
A-352 A-353 A-354 A-355 A-356 A-357 A-358 A-359 A-360 A-361	4 x 3 4 x 3	18/16 3/4 11/16 5/8 9/16 1/2 7/16 8/8 1/4	17.1 16.0 14.8 13.6 12.4 11.1 9.8 8.5 7.2 5.8	46 50 54 60 65 65 65 65 65 65
A-365 A-366 A-367 A-368 A-369 A-370 A-371 A-372	3½ x 3 3½ x 3	11/16 5/8 9/16 1/2 7/16 8/8 5/16	13.6 12.5 11.4 10.2 9.1 7.9 6.6 5.4	40 44 48 50 55 60 65 65
A-377 A-378 A-379 A-380 A-381 A-382 A-383 A-384	3½ x 2½ 3½ x 2½	11/16 5/8 9/16 1/2 7/16 3/8 5/16	12.5 11.5 10.4 9.4 8.3 7.2 6.1 4.9	44 48 50 54 65 65 65 65

In ordering extreme lengths, a leeway of five feet will facilitate the execution of orders.

Angles With Unequal Legs

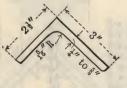
*A-389 to A-394 9.0 to 4.3 lbs.



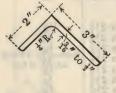
A-399 2.91 lbs.



A-404 to A-410 10.4 to 4.5 lbs.



A-415 to A-420 7.7 to 3.07 lbs.



ESE A

A-425 to A-431 6.8 to 1.86 lbs.



*NOTE.-Made only by special arrangement.

Angles with Unequal Legs

Section Index	Size, Inches	Thickness, Inches	Weight per Foot, Pounds	Maximum Length, Feet
*A-389 *A-390 *A-391 *A-392 *A-393 *A-394	3½ x 2 3½ x 2	9/16 1/2 7/16 3/8 5/16 1/4	9.0 8.1 7.2 6.3 5.3 4.3	26 30 35 40 45 50
A-399	3¼ x 1½	3/16	2.91	40
A-404 A-405 A-406 A-407 A-408 A-409 A-410	3 x 2½ 3 x 2½	5/8 9/16 1/2 7/16 3/8 5/16 1/4	10.4 9.5 8.5 7.6 6.6 5.6 4.5	50 55 65 65 65 65 65
A-415 A-416 A-417 A-418 A-419 A-420	3 x 2 3 x 2 3 x 2 3 x 2 3 x 2 3 x 2	7/2 7/16 3/8 5/16 1/4 3/16	7.7 6.8 5.9 5.0 4.1 3.07	31 35 40 50 50 50
A-425 A-426 A-427 A-428 A-429 A-430 A-431	2½ x 2 2½ x 2	1/2 7/6 3/8 5/6 1/4 8/16	6.8 6.1 5.3 4.5 3.62 2.75 1.86	35 45 45 50 50 50 50

In ordering extreme lengths, a leeway of five feet will facilitate the execution of orders.

^{*}NOTE.-Made only by special arrangement.

Angles with Unequal Legs









A-461 to A-467 5,6 to 1,91 lbs.



A-468 to A-471 3.99 to 2.12 lbs.



A-446 to A-451 6.0 to 2.44 lbs.



A-472 to A-475 3.99 to 2.12 lbs.



Angles with Unequal Legs

Section Index	Size, Inches	Thickness, Inches	Weight per Foot, Pounds	Maximum Length, Feet
A-435	2½ x 1¾	5/ ₁₆ x 3/ ₁₆	3.58	50
. A-440 A-441	$2\frac{1}{2} \times \frac{1}{4}$ $2\frac{1}{2} \times \frac{1}{4}$	1/4 3/16	$\frac{3.40}{2.59}$	50 50
A-446 A-447 A-448 A-449 A-450 A-451	2½ x 1½ 2½ x 1½ 2½ x 1½ 2½ x 1½ 2½ x 1½ 2½ x 1½ 2½ x 1½	1/2 7/16 3/8 5/16 1/4 3/16	6.0 5.3 4.7 3.92 3.19 2.44	45 45 45 50 50
A-456	$2\frac{1}{4} \times 1\frac{5}{8}$	3/8	4.5	45
A-461 A-462 A-463 A-464 A-465 A-466 A-467	2½ x 1½ 2¼ x 1½	1/2 -7/6 3/8 5/16 1/4 3/16 5/32	5.6 5.0 4.3 3.66 2.98 2.28 1.91	45 45 45 50 50 50 50
A-468 A-469 A-470 A-471	2½ x 1½ 2¼ x 1¼ 2¼ x 1¼ 2¼ x 1¼ 2¼ x 1¼	3/8 5/16 1/4 3/16	3.99 3.39 2.77 2.12	35 35 35 35
A-472 A-473 A-474 A-475 A-476	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	3/8 5/6 1/4 8/16 1/8	3.99 3.39 2.77 2.12 1.44	35 35 35 35 35

In ordering extreme lengths, a leeway of five feet will facilitate the execution of orders.

Angles With Unequal Legs

A-480 to A-483 3.83 to 2.04 lbs.



A-488 2.71 lbs.



A-493 to A-496 3.67 to 1.96 lbs.



A-498 and A-499 2.34 and 1.80 lbs.



Angles with Unequal Legs

Section Index	Size, Inches	Thickness, Inches	Weight per Foot, Pounds	Maximum Length, Feet
Index	Thomas			
A-480	2 x 13/8	3/8	3.83	35
A-481	2 x 13/8	5/16	3.26	35
A-482	2 x 13/8	1/4	2.66	35
A-483	2 x 13/8	3/16	2.04	35
	r k complete		507-8	0.5
A-488	2 x 1	5/16 x 1/4	2.71	35
1 100	19/11/	3/8	3.67	35
A-493	13/4 x 11/2	78	2.200	7
A-494	13/4 x 11/2	5/16	3.13	35
A-495	13/4 x 11/2	1/4	2.55	35
A-496	13/4 x 11/2	3/16	1.96	35
Land Control				3.0
A-498	13/4 x 11/4	1/4	2.34	35
A-499	13/4 x 11/4	3/16	1.80	35
11-133	1/4 11 1/4	10	_artifolis	A PART

In ordering extreme lengths, a leeway of five feet will facilitate the execution of orders.

Angles with Unequal Legs

A-501 2.73 lbs.



A-507



A-502 2.61 lbs.



A-512 and A-513 1.32 and 0.91 lbs.



A-504 and A-505 2.13 and 1.64 lbs.



A-523 and A-524 0.92 and 0.64 lbs.

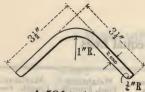


Angles with Unequal Legs

F301				
Section Index	Size, Inches	Thickness, Inches	Weight per Foot, Pounds	Maximum Length, Feet
A-501	13/4 x 11/8	5/16	2.73	35
A-502	1¾ x 1½	19/64	2.61	35
A-504	1½ x 1¼	1/4	2.13	35
A-505	1½ x 1¼	3/16	1.64	35
A-507	1½ x 1	7/32	1.70	35
A-512	13/8 x 7/8	3/16	1.32	45
A-513	13/8 x 7/8	1/8	.91	45
A-523	1 x 5/8	3/16	.92	45
A-524	1 x 5/8	1/8	. 64	45
45	100	The state of the s	111.6 111	t-t- the execution

In ordering extreme lengths, a leeway of five feet will facilitate the execution of orders.

Special Angles



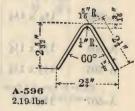
A-584 to A-587 11.3 to 7.8 lbs.



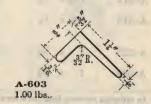
A-589 and A-590 4.0 and 3.34 lbs.



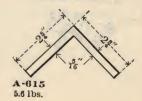
A-592 3.12 lbs. 64











Special Angles Round Back Angles

Section	Size,	Thickness,	Weight per Foot,
Index	Inches	Inches	Pounds
A-584 A-585 A-586 A-587	3½ x 3½ 3½ x 3½ 3½ x 3½ 3½ x 3½ 3½ x 3½	916 1/2 716 3/8	11.3 10.2 9.0 7.8
A-589	$\begin{array}{cccc} 2 & x & 1\frac{5}{8} \\ 2 & x & 1\frac{5}{8} \end{array}$	23/64	4.0
A-590		19/64	3.34
A-591	5/8 x 1/2	5/32	3.12
A-592	17/8 x 11/2	19/64	

Round Back 60° Angles

Section Index	Size, Inches	Thickness, Inches	Weight per Foot, Pounds	
A-596	2½ x 2½	1/8	2.19	
A-597	2¼ x 2¼	1/8	1.98	

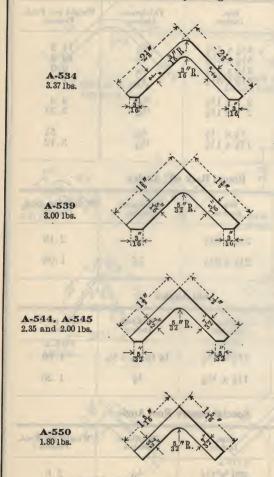
Odd Angles

Section	Size,	Thickness,	Weight per Foot,	
Index	Inches	Inches	Pounds	
A-603 A-604	1½ x ¾ 1¼ x ½ 1¼ x 15/32	½ to ½ x ¾6	1.00 1.26	

Special Square Root Angle

Section	Size,	Thickness,	Weight per Foot,	
Index	Inches	Inches	Pounds	
A-615	2¾ x 2¾	5/16	5.6	

Cold Finished Harvester Angles With Equal Legs



NOTE.—The edges of legs are not cold finished.

Cold Finished Harversler Augles With County Leg-

Cold Finished Harvester Angles With Equal Legs

A 385, A-580

PER-A

Section Index	Size, Inches	Thickness, Inches	Weight per Foot, Pounds
A-534	21/8 x 21/8	1/4	3.37
A-539	15/8 x 15/8	5/16	3.00
A-544	1½ x 1½	1/4	2.35
A-545	1½ x 1½	7/32	2.00
A-550	15/ ₁₆ x 15/ ₁₆	7/32	1.80

NOTE.—Edges of legs are not cold finished.

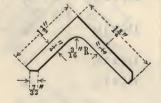


Cold Finished Harvester Angles With Unequal Legs

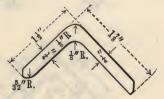
A-565, A-566 3.40 and 2.75 lbs.



A-571, A-572 3.06 and 2.50 lbs.



A-577 2.60 lbs.



NOTE.-Edges of legs are not cold finished.

Tees with Equal Legs

Cold Finished Harvester Angles With Unequal Legs

Section Index	Size, Inches	Thickness, Inches	Weight per Foot, Pounds
A-565	2 x 15/8	5/16	3.40
A-566	2 x 15/8	1/4	2.75
A-571	13/4 x 11/2	. 5/16	3.06
A-572	13/4 x 11/2	1/4	2.50
A-577	17/8 x 11/2	1/4	2.60

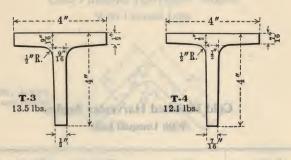
NOTE.—Edges of legs are not cold finished.

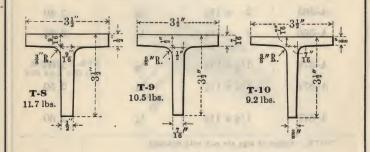
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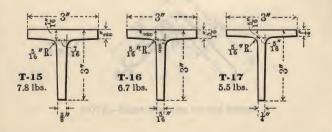
BI-T

TIS

Tees with Equal Legs







Ters with Equal Legs

Tees with Equal Legs

RE-F

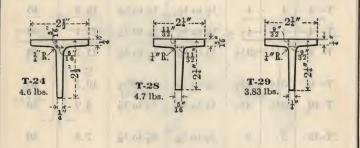
DOWN

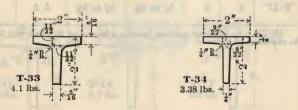
Section	SIZE, INCHES		THICKN METAL,		Weight, per Foot.	Maxi- mum Length
Index	Table	Stem	Table	Stem	Pounds	in Feet
T- 3	4	4	½ to %	½ to %6	13.5	40
T- 4	4	4	7/16 to 1/2	7/16 to 1/2	12.1	40
T- 8	31/2	31/2	½ to %6	½ to %	11.7	40
Т- 9	3½	31/2	1/16 to 1/2	1/6 to 1/2	10.5	40
T-10	3½	3½	3/8 to 7/16	3/8 to 7/16	9.2	40
	9	-	M. to se			
T-15	3	3	3/8 to 7/16	3/8 to 7/16	7.8	40
T-16	3	3	5/16 to 3/8	5/16 to 3/8	6.7	40
T-17	3	3	½ to ½	1/4 to 5/16	5.5	40

NOTE.—In ordering extreme lengths a leeway of five feet will facilitate the execution of orders.

Tees with Equal Legs







Tees with Equal Legs

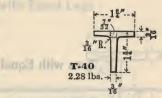
Section	SIZE, INCHES .		THICKNESS OF METAL, INCHES		Weight,	Maxi- mum
Index	Table	Stem	Table	Stem	Foot, Pounds	Length in Feet
T-22	21/2	21/2	3/8 to 7/16	3/8 to 7/16	6.4	40
T-23	21/2	21/2	5/16 to 3/8	5/16 to 3/8	5.5	45
T-24	21/2	21/2	½ to ½	½ to 5/16	4.6	50
	1.14		111			
T-28	21/4	21/4	5/16 to 11/32	5/16 to 11/32	4.7	50
T-29	21/4	21/4	½ to %2	1/4 to 9/32	3.83	50
		2.1			199	
T-33	2	2	5/16 to 11/32	5/16 to 11/32	4.1	50
T-34	2	2	½ to %2	½ to 3/32	3.38	50

NOTE.—In ordering extreme lengths a leeway of five feet will facilitate the execution of orders.

Tees with Equal Legs

CHEST LETTER !

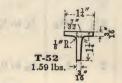


















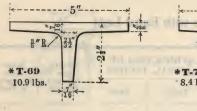
Pers with Potqual Legs

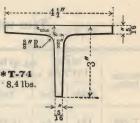
Tees with Equal Legs

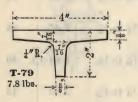
Section	SIZE, INCHES		THICKNESS OF METAL, INCHES		Weight, per Foot,	Maxi- mum Length		
Index	Table	Stem	Table	Stem	Pounds	in Feet		
T-39	13/4	13/4	½ to %2	½ to %2	2.93	40		
T-40	13/4	13/4	3/16 to 7/32	3/16 to 7/32	2.28	40		
T-45	11/2	11/2	½ to %2	1/4 to 9/2	2.47	40		
T-46	1½	1½	3/16 to 7/32	3/16 to 7/32	1.94	40		
T-51	11/4	11/4	1/4 to 9/32	½ to %2	2.02	45		
T-52	11/4	11/4	3/16 to 7/32	3/16 to 7/32	1.59	45		
T-57	1	1	3/16 to 7/32	3/16 to 7/32	1.25	45		
T-58	1	1	. ½ to 5/32	· 1/8 to 5/32	.89	45		
T-60	1	1	1/8	7/64 to 1/8	.80	45		

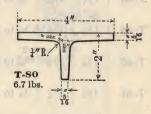
NOTE.—In ordering extreme lengths a leeway of five feet will facilitate the execution of orders.

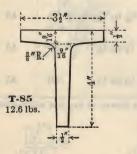
Tees with Unequal Legs

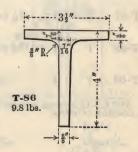












*NOTE .- Made only by special arrangement.

Tees with Unequal Legs

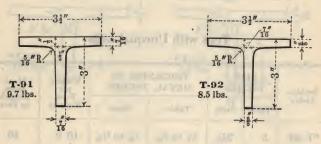
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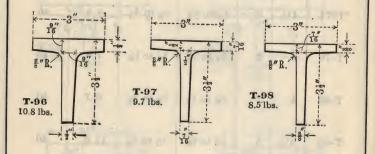
	SIZE,		THICKN METAL,		Weight,	Maxi-
Section Index	Table	Stem	Table	Stem	Foot, Pounds	mum Length in Feet
*T-69	5	21/2	3/8 to 1/16	7/16 to 21/32	10.9	40
*T-74 .	4½	3	5/16 to 3/8	5/16 to 3/8	8.4	40
T-79	4	2	3/8 to 7/16	3/8 to 7/16	7.8	40
T-80	4	2	5/16 to 3/8	5/16 to 3/8	6.7	40
T-85	3½	4	½ to %6	½ to %6	12.6	40
T-86	3½	4	3/8 to 7/16	3/8 to 7/6	9.8	40

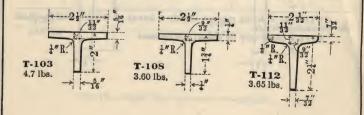
NOTE.—In ordering extreme lengths a leeway of five feet will facilitate the execution of orders.

*NOTE.-Made only by special arrangement.

Tees with Unequal Legs





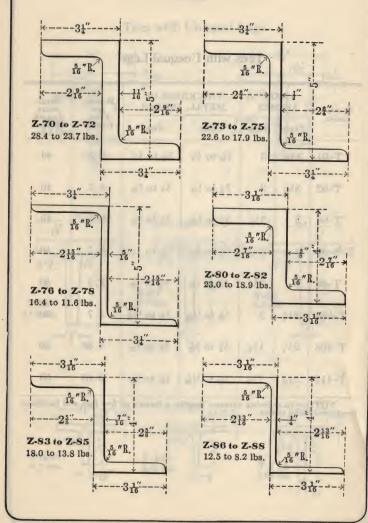


Tees with Unequal Legs

Section	SIZE, INCHES		THICKNESS OF METAL, INCHES		Weight, per Foot,	Maxi- mum Length
Index	Table	Stem	Table	Stem	Pounds	in Feet
T-91	31/2	3	7/16 to 1/2	7/16 to 1/2	9.7	40
Т-92	3½	3	3/8 to 7/16	3/8 to 7/16	8.5	40
T-96	3	31/2	½ to %	½ to %6	10.8	40
T-97	3	31/2	7/16 to 1/2	7/16 to 1/2	9.7	40
T-98	3	31/2	3/8 to 7/16	3/8 to 7/16	8.5	40.
T-103	21/2	2	5/16 to 11/32	5/16 to 11/32	4.7	50
T-108	21/2	13/4	1/4 to 9/32	1/4 to 9/32	3.60	50
T-112	21/32	21/4	7/32 to 11/32	7/32 to 9/32	3.65	50

NOTE.—In ordering extreme lengths a leeway of five feet will facilitate the execution of orders.

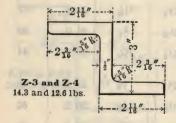
Zees

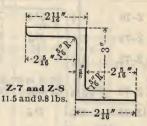


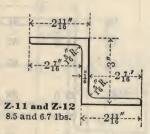
Zees

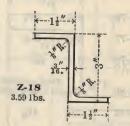
_	-						
	Section	SIZE, INCHES			Thickness of Metal, Inches	Weight, per Foot, Pounds	Maximum Length in Feet
	Index	Flange	Web	Flange	Theres		
	Z-70	33/8	51/8	33/8	13/16	28.4	37
	Z-71	35/16	51/16	35/16	3/4	26.0	40
	Z-72	31/4	5	31/4	11/16	23.7	44
	Z-73	33/8	51/8	33/8	5/8	22.6	46
	Z-74	35/16	51/16	35/16	9/16	20.2	52
	Z-75	31/4	5	31/4	1/2	17.9	60
	Z-76	33/8	51/8	33/8	7/16	16.4	61
	Z-70 Z-77	35/16	51/16	35/16	3/8	14.0	65
	Z-78	31/4	5	31/4	5/16	11.6	65
	Z-80	33/16	41/8	33/16	3/4	23.0	38
	Z-81	31/8	41/16	31/8	11/16	20.9	42
	Z-82	31/16	4	31/16	5/8	18.9	46
	Z-83	33/16	41/8	33/16	9/16	18.0	48
	Z-84	31/8	41/16	31/8	1/2	15.9	55
1	Z-85	31/16	4	31/16	7/16	13.8	62
1	Z-86	33/16	41/8	33/16	3/8	12.5	65
	Z-87	31/8	41/16	31/8	5/16	10.3	65
-	Z-88	31/16	4	31/16	1/4	8.2	65
		1	1				

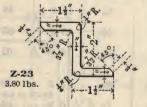
Zees

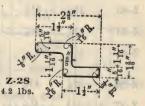










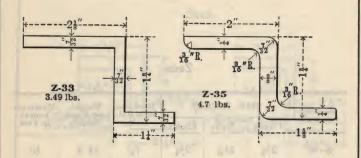


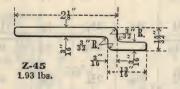
Zees

Section Index	SIZ	E, INCH Web	ES Flange	Thickness of Metal, Inches	Weight, per Foot, Pounds	Maximum Length in Feet
Z- 3 Z- 4	23/4 211/16	31/16	2 ³ ⁄ ₄ 2 ¹¹ ⁄ ₁₆	9/16 1/2	14.3 12.6	56 64
Z- 7 Z- 8	23/ ₄ 211/ ₁₆	3½6 3	2 ³ / ₄ 2 ¹¹ / ₁₆	7/16 3/8	11.5	65 65
Z-11 Z-12	2 ³ / ₄ 2 ¹¹ / ₁₆	31/16	23/4 211/16	⁵ / ₁₆	8.5	65 65
Z-18	1½	3	1½	3/16	3.59	60
Z-23 Z-28	1½	13/8	1½	¹ / ₄ ³ / ₈ x ⁵ / ₁₆	4.2	60

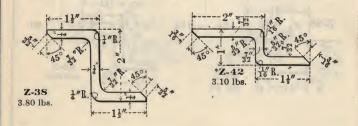
ALC: N

Zees





Cold Finished Harvester Zees



*Can be hot rolled to dimensions shown.

Zees

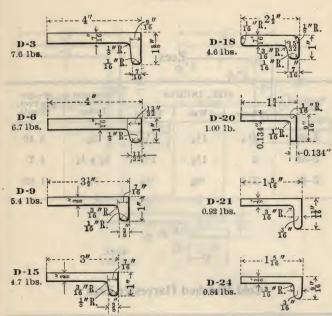
Section		ZE, INCH	ES	Thickness of Metal,	Weight per Foot,
Index	Flange	Web	Flange	Inches	Pounds
Z-33	21/8	13/4	11/4	7/32	3.49
Z-35	2	13/4	15/8	3/8 x 1/4	4.7
Z-45	21/8	15/32	13/16	3/16	1.93

Cold Finished Harvester Zees

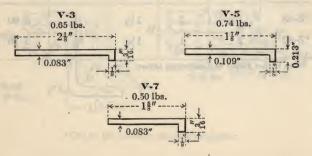
Section	SI	ZE, INCH	ES	Thickness of Metal,	Weight per Foot,
Index	Flange	Web	Flange Inches	Pounds	
Z-38	1½	2	1½	1/4	3.80
*Z-42	2	1	1½	7/32	3.10

^{*}Can be hot rolled to dimensions shown.

Dropper Bars



Wearing Plates



Dropper Bars

Section Index	Size, Inches	Weight, per Foot, Pounds	Maximum Length of Dropper, Bars, Feet
D- 3	4 x 13/8	7.6	50
D- 6	4 x 1	6.7	35
D- 9	3½ x 1	5.4	35
D-15	3 x 1	4.7	50
D-18	2½ x 1	4.6	35
D-20	13/4 x 9/16	1.00	35
D-21	15/ ₆ x ¹¹ / ₁₆	.92	50
D-24	15/ ₁₆ x 9/ ₁₆	.84	50

Wearing Plates

Size, Inches	Weight per Foot, Pounds
2½ x ¾6	.65
1⅓ x .213	.74
15/8 x 3/16	:50
	2½ x ¾6 1½ x .213

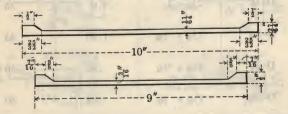
Beaded and Ribbed Harvester Tire



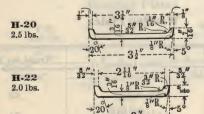


Beaded Harvester Tires

H-10



H-12



Beaded and Ribbed Harvester Tire

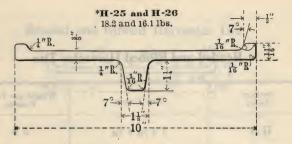
Section Index	Size, Inches	Weight per Foot, Pounds	
H-5	7 x 1/16 x 3/16	5.0	

Rempet and Harvesley Furger Har

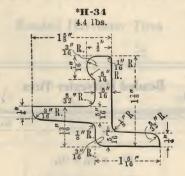
Beaded Harvester Tires

Section Index	Size, Inches	Weight per Foot, Pounds
H-10	10 x ²⁷ / ₆₄ x ¹¹ / ₆₄	7.0
H-12	9 x ½ x 3/16	7.0
H-20	3½ x 1/6 x 3/6	2.50
H-22	3 x 3/8 x 3/16	2.00

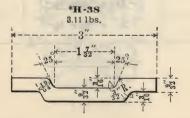
Tractor Tire



Reaper and Harvester Finger Bar



Binder Section



*NOTE.—These sections made only by special arrangement.

Tractor Tire

Diministration of the

Section Index	Size, Inches	Weight per Foot, Pounds
*H-25	10 x 11/16 x 3/8	18.2
*H-26	10 x 5/8 x 5/16	16.1

Reaper and Harvester Finger Bar

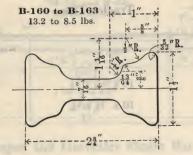
Section Size, Inches		Thickness, Inches	Weight per Foot, Pounds
*H-34	17/8 x 15/8 x 15/16	5/16	4.4

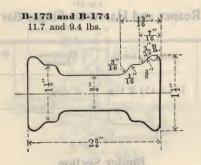
Binder Section

Section Index	Size, Inches	Weight per Foot, Pounds
*H-38	3 x 1/32	3.11

^{*}NOTE.—These sections made only by special arrangement.

Plow Beams

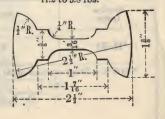




B-430 to B-435



B-450 to B-455 11.2 to 5.8 lbs.



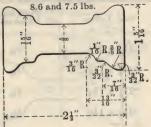
12-17-

Plow Beams

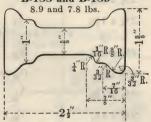
A ROOM ASSOCIATION IN		
Size, Inches	Thickness, Inches	Weight per Foot, Pounds
2¾ x 2	15/16	13.2
2¾ x 1¾	11/16	10.8
2¾ x 15/8	9/16	9.7
2¾ x 1½	7/16	8.5
2¾ x 1¾	i	11.7
$2\frac{3}{4} \times 1\frac{1}{2}$	3/4	9.4
2¾ x 21/8	13/16	12.8
2¾ x 2	11/16	11.7
23/4 x 17/8	916	10.5
2¾ x 1¾	7/16	9.3
23/4 x 121/32	11 1/32	8.4
$2\frac{3}{4} \times 1\frac{5}{8}$	5/16	8.1
2½ x 2	13/16	11.2
2½ x 17/8	11/16	10.1
$2\frac{1}{2} \times 1\frac{3}{4}$	916	9.1
2½ x 15/8	7/16	8.0
$2\frac{1}{2} \times 1\frac{1}{2}$	5/16	6.9
$2\frac{1}{2} \times 1\frac{3}{8}$	3/16	5.8
	2¾ x 2 2¾ x 1¾ 2¾ x 1½ 2¾ x 1½ 2¾ x 1½ 2¾ x 1½ 2¾ x 1½ 2¾ x 2½ 2¾ x 2½ 2¾ x 1¼ 2¾ x 1½ 2¾ x 1½ 2¾ x 1½ 2¾ x 1½ 2¾ x 1¼ 2¼ x 1½ 2¼ x 1½ 2¼ x 1½ 2¼ x 1½ 2¼ x 1½ 2¼ x 1½ 2½ x 1½ 2½ x 1½	Size, Inches Inches 2¾ x 2 15/16 2¾ x 1¾ 11/16 2¾ x 1½ ½ 2¾ x 1½ ½ 2¾ x 1½ ¾ 2¾ x 1½ 11/6 2¾ x 1½ 5/6 2½ x 2 13/16 2½ x 1½ 11/16 2½ x 1¾ 9/16 2½ x 1½ 5/16

Plow Beams

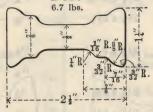




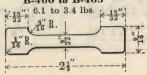
B-188 and B-189



B-190



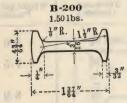
B-460 to B-465

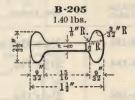


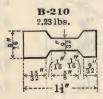
Plow Beams

Section Index	Size, Inches	Thickness, Inchés	Weight per Foot, Pounds
B-183	2½ x 1½	3/4	8.6
B-184	$2\frac{1}{2} \times 1\frac{5}{16}$	5/8	7.5
B-188	$2\frac{1}{2} \times 1\frac{1}{2}$	3/4	8.9
B-189	2½ x 13/8	5/8	7.8
B-190	2½ x 1¼	1/2	6.7
B-460	2½ x 7/8	19/32	6.1
B-461	2½ x 13/16	17/32	5.6
B-462	2½ x ¾	15/32	5.0
B-463	2½ x 11/16	13/32	4.5
B-464	2½ x 5/8	11/32	3.95
· B-465	2½ x %6	9/32	3.40

Cultivator Beams









Rack Rails

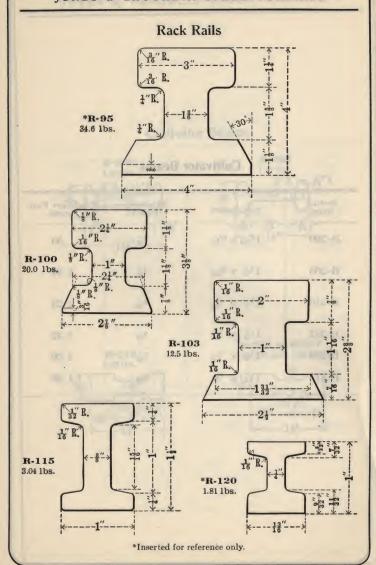
Cultivator Beams

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Section Index	Size, Inches	Thickness, Inches	Weight per Foot, Pounds
B-200	137/64 x 43/64	3 16	1.50
B-205	1½ x 21/32	1/8	1.40
B-210	1½ x %	9 1/2	2.23
B-215	1½ x 1/2	9/32	2.32
B-216	1½ x ½	7/32	2.00
B-217	1½ x 1/6	5/32	1.68

BELLET

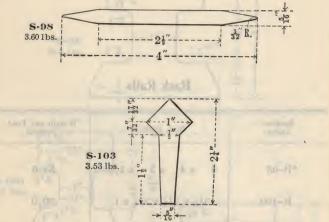


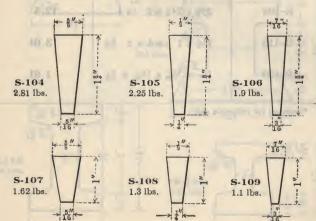
Rack Rails

Section Index	Size, Inches	Weight per Foot, Pounds
*R-95	4 x 4 x 3 x 13%	34.6
R-100	31/8 x 21/8 x 21/4 x 1	20.0
R-103	23/8 x 21/2 x 2 x 1	12.5
R-115	1½ x 1 x 1 x 3/8	3.04
*R-120	1 x ¹³ / ₁₆ x ¹³ / ₁₆ x ¹ / ₄	1.81

^{*}Inserted for reference only.





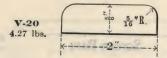


Country La

Screen Bars

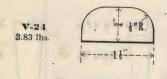
Section Index	Size, Inches	Weight per Foot, Pounds
S- 98	4 x ⁵ / ₁₆	3.60
S-103	21/4 x 1 x 5/16	3.53
S-104	134 x 5/8 x 5/16	2.81
S-105	1¾ x ½ x ¼	2.25
s-106	13/4 x 7/6 x 3/6	1.90
S-107	1 x 5/8 x 5/16	1.62
S-108	1 x ½ x ¼	1.30
S-109	1 x 7/6 x 3/16	1.10

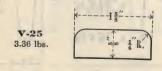
Cylinder Lag













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Cylinder Lag

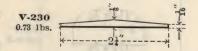
Section Index	Size, Inches	Weight per Foot, Pounds
V-20	2 x 5/8	4.27
V-22	1¾ x 5⁄8	3.75
V-23	1¾ x ¾	2.21
V-24	1½ x ¾	3.83
V-25	15% x 5/8	3.36
V-26	1½ x ¾	3.72

Hoe Point

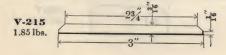


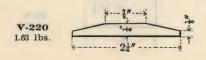






Bevel Edge





Hoe Point

Heatr Band Literaca Harrow York

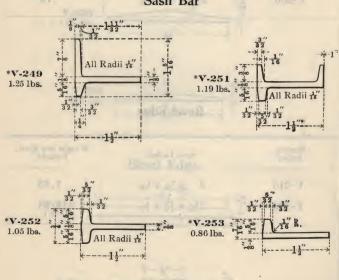
Section Index	Size, Inches	Weight per Foot, Pounds
V-224	3 x 3/16 x 1/16	1.28
V-226	23/4 x 3/16 x 1/16	1.17
V-228	2½ x 3/16 x 1/16	1.07
V-230	21/4 x 1/8 x 1/16	.73

Bevel Edge

Section Index	Size, Inches	Weight per Foot, Pounds
V-215	3 x 3/16 x 1/16	1.85
V-220	21/4 x 1/4 x 1/8	1.63



Sash Bar



Heater Band

Section Index	Size, Inches	Weight per Foot, Pounds
V-235	2 x ¹¹ / ₃₂	.88

Diamond Harrow Tooth

Section Index	Size, Inches	Weight per Foot, Pounds
V-240	7∕8 x 5∕8	. 95

Sash Bars

Section Index	Size, Inches	Weight per Foot, Pounds
*V-249	1½ x 15/6 x 1/8	1.25
*V-251	1½ x ½ x ½ x ½	1.19
*V-252	1½ x ¾ x ⅓	1.05
*V-253	1½ x 1/6 x 1/2	.86

^{*}Inserted for reference only.

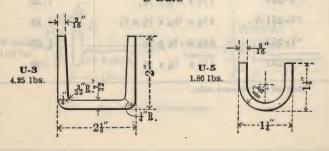
Curved Sections



Can Ring Sections



U Bars



Curved Sections

Section Index	Size, Inches	Weight per Foot, Pounds
V-258	2 x 3/16 x 19/16 Rad.	1.26
V-260	133/64 x 1/4 x 1 Rad.	1.28

Can Ring Sections

Section Index	Size, Inches	Weight per Foot, Pounds
V-295	2 x 15/64	1.50
V-300	1½ x 15/4	1.10

U Bars

Section Index	Size, Inches	Weight per Foot, Pounds
U-3	21/8 x 2 x 7/32	4.25
U-5	11/4 x 11/4 x 3/16	1.86
		(200_0

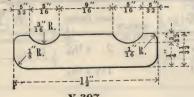
Guy Clamps

V-305 1.60 lbs.

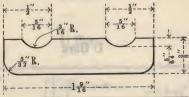




V-306 1.65 lbs.

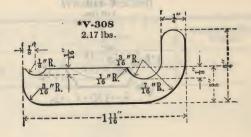


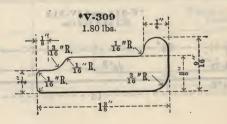
V-307



Section Index	Size, Inches	Weight per Foot, Pounds
V-305	. 19/ ₁₆ x ¹¹ / ₃₂	1.60
V-306	1½ x 11/32	1.65
V-307	1% x 3/8	1.85

Suspension Clamps





Section Index	Size, Inches	Weight per Foot, Pounds
*V-308	1 ¹¹ / ₁₆ x ³ / ₄ x ³ / ₈	2.17
*V-309	13/8 x 9/16 x 3/8	. 1.80

^{*}These sections have been inserted for reference only.

Washer Section



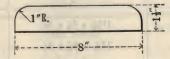
Switch Plates

*V-311 and *V-312 45.1 and 37.4 lbs.



Follower Plate

V-350 39.4 lbs.



*These sections have been inserted for reference only.

Washer Section

Section Index	Size, Inches	Weight per Foot, Pounds
V-310	1½ x ½	1.02

Switch Plates

Section Index	Size, Inches	1	Weight per Foot, Pounds
*V-311	18 x 5/8 & 7/8	10.00	45.1
*V-312	18 x ½ & ¾		37.4

Follower Plate

Section Index	Size, Inches	Weight per Foot, Pounds
V-350	8 x 1½	39.4

^{*}These sections have been inserted for reference only.

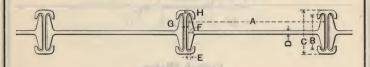
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J & L Sheet Piling

Under Patent Dated October 13, 1908

·Weights and Dimensions



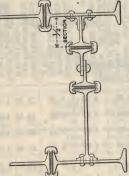
Section Index	Size, Inches	Weight Per Sq. Ft., Pounds	A	В	С	D	Е	F	G	н
000	12 x 41/4	32 00	12	2.90	41/4	0.335	0.35	0.75	0.21	0.56
00	12 x 41/4	33.50	12	2.94	41/4	0.375	0.35	0.75	0.21	0.56
0	12 x 41/4	35.00	12	2.94	41/4	0.415	0.35	0.75	0.21	0.56
1	12 x 5	35.00	12	3.94	5	0.34	0.35	0.65	0.21	0.44
2	12 x 5	36.25	12	3.94	5	0.38	0.35	0.65	0.21	0.44
3	15 x 6	37.20	15	4.75	6	0.38	0.37	0.74	0.23	0.49
4	15 x 6	39.75	15	4.75	6	0.44	0.37	0.74	0.23	0.49
5	15 x 6	42.25	15	4.75	6	0.50	0.37	0.74	0.23	0.49

Illustrated Catalogue mailed upon application.

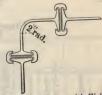
J & L Sheet Piling

Standard Corner Pieces and Special Connections

Special Fabricated Corner and Connection. ½ Section attached to Web of Another Section by Means of Angles and Rivets.



Section Employed to Straighten Wall when Toe of Section has been Thrown Forward or Back from a Vertical Line.



Standard Corner with Web Bent 90° with a 2 inch Radius



Special Section for Cross Wall Connection

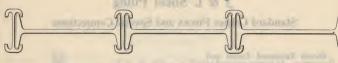
Special Corner and Connection. Flange of One I-Beam Riveted Direct to Web of Another Section.





The above are corner pieces and special connections which are ordinarily used, but if unusual conditions or special designs require other details, this piling can readily be adapted to meet such situations.

J & L Sheet Piling



Properties of Sheet Piling Beams

											20.00
Section Index	Depth of Beam, Inches	Weight per Linear Foot, Pounds	Area of Section, Square Inches	Thickness of Web, Inches	Width of Flange, Inches	Moment of Inertia Neutral Axis Perpen- dicular to Web at Center	Moment of Inertia Neutral Axis Coin- cident with Center Line of Web	Radius of Gyration Neutral Axis Perpen- dicular to Web at Center	Radius of Gyration Neutral Axis Coinci- dent with Center Line of Web	Section Factor Neutral Axis Perpendicular to Web at Center	Section Factor Neutral Axis Coincident with Center Line of Web
B-315	12	23.26	6.84	0.34	2.90	140.50	1.92	4.53	0.53	23.42	1.32
B-314	12	24.90	7.32	0.38	2.94	146.27	2.01	4.47	0.52	24.38	1.37
B-313	12	26.37	7.76	0.42	2.94	150.47	2.04	4.40	0.51	25.08	1.38
B-310	12	26.30	7.72	0.34	3.94	167.76	4.43	4.67	0.76	27.96	2.25
B-309	12	27.60	8.10	0.38	3.94	172.10	4.56	4.61	0.75	28.68	2.30
B-302	15	35.75	10.50	0.38	4.75	358.16	8.52	5.84	0.90	47.75	3.59
B-301	15	39.00	11.44	0.44	4.75	375.03	8.91	5.71	0.88	50.00	3.70
B-300	15	42.25	12.37	0.50	4.75	391.92	9.31	5.62	0.87	52.25	3.82

Properties of Locking Bars

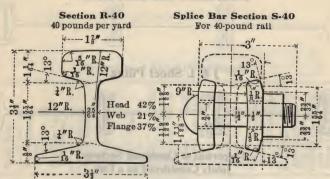
Section Index	Depth of Locking Bar, Inches	Weight per Linear Foot, Pounds	Area of Sections, Square Inches	Thickness of Web, Inches	Moment of Inertia Neutral Axis Perpen- dicular to Web at Center	Moment of Inertia Neutral Axis Coinci- dent with Center Line of Web	Radius of Gyration Neutral Axis Perpen- dicular to Web at Center	Radius of Gyration Neutral Axis Coinci- dent with Center Line of Web	Section Factor Neutral Axis Perpendicular to Web at Center	Section Factor Neutral Axis Coincident with Center Line of Web
B-322	41/4	10.3	3.00	0.21	7.50	0.87	1.58	0.54	3.53	0.54
B-321	5	9.75	2.87	0.21	10.50	0.64	1.91	0.47	4.20	0.64
B-316	6	12.25	3.61	0.23	18.42	1.11	2.26	0.55	6.14	1.03

J & L Sheet Piling



Properties of Combined Sections Joints Considered as a Unit

Sec- tion Index	Size, Inches	Weight per Square Ft. of Assembled Area, Pounds	of Area Assembled Area, Section, I		Moment of Inertia Neutral Axis Coincident with Center Line of Web	Radius of Gyration Neutral Axis Coincident with Center Line of Web	Section Factor Neutral Axis Coincident with Center Line of Web
000	12x4½	32.0	9.84	41/4	9.42	0.99	4.85
00	12x4½	33.5	10.32	. 41/4	9.52	0.96	4.90
0	12x4½	35.0	10.76	41/4	9.54	0.94	4.91
- 1	12x4/4	35.0	10.59	5	14.93	1.19	6.45
1	-	36.25	10.97	5	15.06	1.17	6.50
2	12x5		14.11	5	26.94	1.38	9.73
3	15x6	37.20			27.33	1.35	9.84
4	15x6	39.75	15.05	5			9.96
5	15x6	42.25	15.98	5	27.73	1.31	0.00

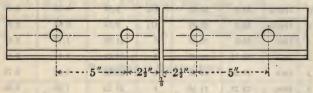


62.86 gross tons of rails per mile of single track. 84 feet of single track per gross ton of rails.

Punching of Rail

Center of web.

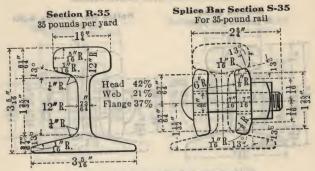
Diameter of holes, % inch.



Punching of Splice Bar Elliptical holes, 11/8x11 inch.



Approximate weight of complete joint 14.90 pounds. Bolts $3x\frac{3}{4}$ inch, square nut. Spike $5x\frac{3}{16}$ or $5x\frac{3}{4}$ inch.

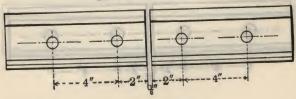


55 gross tons of rails per mile of single track. 96 feet of single track per gross ton of rails.

Punching of Rail

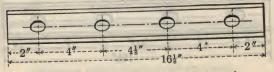
Center of web.

Diameter of holes ¾ inch.

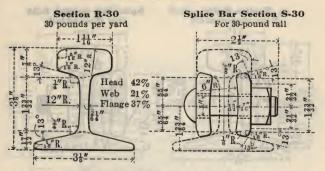


Punching of Splice Bar

Elliptical holes, 31x16 inch.



Approximate weight of complete joint 9.42 pounds. Bolts 23/4x5/2 inch, square nut. Spikes 41/2x1/2 inch.



47.14 gross tons of rails per mile of single track.
112 feet of single track per gross ton of rails.

Punching of Rail

Center of web.

Diameter of holes ¾ inch.

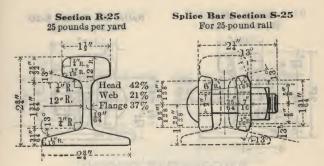


Punching of Splice Bar

Elliptical holes, #x x inch.



Approximate weight of complete joint 9.26 pounds. Bolts 2½x¾ inch, square nut. Spikes 4x½ inch.

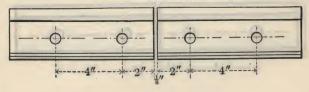


39.29 gross tons per mile of single track.
134.4 feet of single track per gross ton of rails.

Punching of Rail

Center of web.

Diameter of holes % inch.

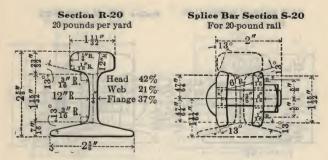


Punching of Splice Bar

Elliptical holes, 34x 1 inch.



Approximate weight of complete joint 8.35 pounds. Bolts 2½x½ inch, square nut. Spikes 4x½ inch.

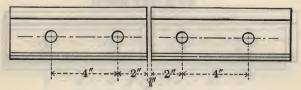


31.43 gross tons per mile of single track.
168 feet of single track per gross ton of rails.

Punching of Rail

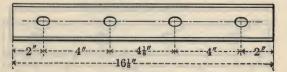
Center of web.

Diameter of holes % inch.



Punching of Splice Bar

Elliptical holes, 3/4x16 inch.

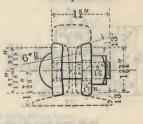


Approximate weight of complete joint 5.77 pounds. Bolts 2x½ inch, square nut. Spikes 3½x½ inch.

Section R-16 16 pounds per yard



Splice Bar Section S-16
For 16-pound rail

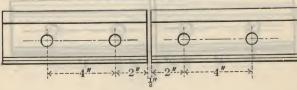


25.14 gross tons of rails per mile of single track.
210 feet of single track per gross ton of rails.

Punching of Rail

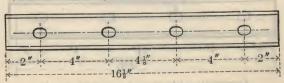
Center of web.

Diameter of holes, 5% inch.



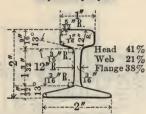
Punching of Splice Bar

Elliptical holes, 3/4 x 16 inch

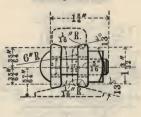


Approximate weight of complete joint 5.22 pounds. Bolts 13/4x1/2 inch, square nut. Spikes 31/4x1/2 inch.

Section R-12 12 pounds per yard



Splice Bar Section S-12 For 12-pound rail

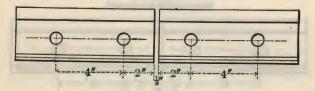


18.86 gross tons of rails per mile of single track. 280 feet of single track per gross ton of rails.

Punching of Rail

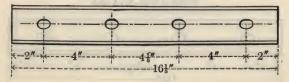
Center of web.

Diameter of holes 5% inch.



Punching of Splice Bar

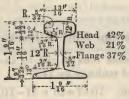
Elliptical holes, 3/4x16 inch.

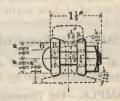


Approximate weight of complete joint 4.31 pounds, Bolts 13/4x1/4 inch, square nut. Spikes 3x1/8 inch.

Section R-8 8 pounds per yard

Splice Bar Section S-8 For 8-pound rail



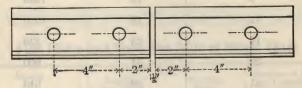


12.57 gross tons per mile of single track.
420 feet of single track per gross ton of rails.

Punching of Rail

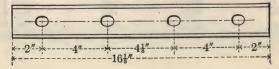
Center of web.

Diameter of holes ½ inch.



Punching of Splice Bar

Elliptical holes, %x16 inch.



Approximate weight of complete joint 3.16 pounds. Bolts 1½x¾ inch, square nut. Spikes 2½x¼ inch.

Steel Rails Required for One Mile of Track

RULE.—To find number of gross tons of rail to the mile, divide the weight per yard by 7 and multiply by 11.

EXAMPLE.—For 70-pound rail: 70÷7=10 x 11=110 tons.

The number of tons of 2,000 pounds required per mile is very nearly 13/4 times the weight per yard.

Weight of Rail,	TONS PER MILE, 2,240 POUNDS						
per Yard, Pounds	Tons	Pounds					
8	12	1280					
12	18	1920					
16	25	320					
20	31	960					
25	39	640					
30	47	320					
35	55						
40	62	1920					

Splice Joints for One Ton of Rails

This table is based on standard practice for lengths, viz.: 90 per cent in 30 feet, and balance, or 10 per cent, to be not less than 24 feet. (Plain joints for 8 to 40 pounds made by Jones & Laughlin Steel Company.)

8 12 16	
20 25 30 35 40	28.00 19.04 14.28 11.42 9.14 7.62 6.53 5.71

Fish Plates and Bolts Per Mile of Single Track

Length of Rail	Number Fish Plates	Number Bolts	Number of Rails or Complete Joints
24 Feet 25 Feet 26 Feet 27 Feet 28 Feet 30 Feet 30 Feet 10% Shorts	880 844 812 782 754 704	1760 1688 1624 1564 1508 1408	440 422 406 391 377 352 355

STANDARD SQUARE SPIKES

R. R. SPIKE



BOAT SPIKE



NAIL HEAD SPIKE



BARGE SPIKE



BUTTON HEAD SPIKE



NOTE.—We invite inquiries concerning spikes to special specifications.

Standard Railroad Spikes

Size, Inches	Average Number per Keg 200 Pounds	QUANTITY OF SPIKES PER MILE OF SINGLE TRACK, TIES 2 FEET CENTER TO CENTER, 4 SPIKES PER TIE					
	200 1 0 41143	Pounds	Kegs				
6½ x 5/8 6 x 5/8 5½ x 5/8 6½ x 9/6 6 x 9/6 5½ x 9/6 5½ x 9/6 5½ x 1/2 4½ x 1/6 6 3½ x 1/6 6 3½ x 1/6 6 5½ x 1/6 6 5/2 x 1/2 4½ x 1/2 4½ x 1/2 4½ x 1/2 4½ x 1/2 4½ x 1/2 4½ x 1/6 6 4 4 2 x 1/6 6 6 4 4 4 2 x 1/6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	237 253 265 301 253 297 360 374 418 465 538 605 663 758 645 746 860	8910 8348 7955 7020 8348 7110 5920 5649 5054 4544 3928 3492 3187 2787 3276 2836 2457	Kegs 44 ½ 41 ¾ 39 ¾ 35 ⅓ 35 ⅓ 20 ⅓ 28 ⅓ 25 ⅓ 21 ⅓ 22 ⅓ 17 ⅓ 16 14 16 ⅔ 14 ⅓ 16 ⅓ 16 ⅓ 16 ⅓ 16 ⅓ 16 ⅓ 16 ⅓ 16 ⅓ 16				
3 X 16	976 766	$\frac{2164}{2758}$	$10\frac{9}{10}$ $13\frac{3}{4}$				
4 ½ X 3/8 4 X 3/8	1002	2108	101/2				
3½ x 3/8	1198	1764	9				
3 x 3/8	1367	1545	73/4				
3 x 3/8 21/2 x 3/8	1650	1280	62/5				
$2\frac{1}{2} \times \frac{5}{16}$	2129	992	5				

We also furnish Goldie Point Railroad Spikes.

Boat, Barge, Button Head and Nail Head Spikes Approximate Number per Keg of 200 Pounds

Inches				LEN	GTH	OF S	PIKE	-INC	CHES			
Square	3	4	5	6	7	8	9	10	11	12	14	16
5/8				450	975	260 335	$\frac{240}{300}$	$\frac{220}{275}$	-		175 205	160
1/2				450 600	-							
		1140		800	650	600						
5/16	1660	1360	1230	$1175 \\ 1825$	990			710				

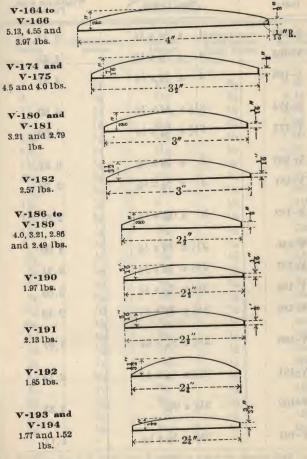
NOTE.—We invite inquiries concerning spikes to special specifications.

Oval Edge or Reach Plate

Section Index	Size, Inches	Weight per Foot, Pounds
V-103 V-104 V-105	1 1/4 x 3/8 1 1/4 x 5/16 1 1/4 x 9/32	1.50 1.24
V-103 V-111 V-112	1½ x 5/6	1.11 1.15 .91
V-112 V-113 V-114	1½ x ¼ 1½ x ¾ 1½ x ¾ 1½ x ½	.67 .43
$\begin{array}{c} V-119 \\ V-120 \\ V-121 \\ V-122 \end{array}$	$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	1.02 .81 .60
V-127 V-128	7/8 x 5/16	.39 .91 .72
V-129 V-130	7/8 x 3/16 7/8 x 1/8	.53 .34
V-135 V-136 V-137 V-138	27 ₃₂ x 5 ₆ 27 ₈₂ x 1 ₄ 27 ₃₂ x 3 ₆ 27 ₃₂ x 1 ₈	.86 .68 .50 .32
V-143 V-144 V-145	34 × 5/6 34 × 1/4 34 × 8/6	.76 .60 .44
V-145 V-146 V-151	3/4 X 1/8	.72
V-151 V-152 V-153 V-154	2932 X 9/6 2332 X 1/4 2332 X 3/6 2332 X 1/8	.12 .57 .42 .27
	74 752 700 100	man marabania Si

NOTE.—Sections V-103-4-5 rolled with $\frac{1}{4}$ -inch radius. All other sections, $\frac{3}{16}$ -inch radius.

Special Half Ovals



NOTE—For sizes not shown inquiries may be submitted.

Special Half Ovals

- ALVERTINE TO CONT.				
Section Index	Size, Inches	Weight per Foot, Pounds		
V-164	4 x ½ x 1/8	5.13		
V-165	4 x ½6 x ½	4.55		
V-166	4 x 3/8 x 1/8	3.97		
V-174	3½ x ½ x 1/8	4.50		
V-175	3½ x 1/6 x 1/8	4.00		
V-180	3 x ½6 x ½6	3.21		
V-181	3 x 3/8 x 1/16	2.79		
V-182	3 x ¹¹ / ₃₂ x ¹ / ₁₆	2.57		
V-186	2½ x 5/8 x ½	4.00		
V-187	2½ x ½ x 1/8	3.21		
V-188	2½ x 1/6 x 1/8	2.86		
V-189	2½ x 3/8 x ½	2.49		
V-190	2½ x 5/6 x 1/16	1.97		
V-191	2½ x ½ x ½	2.13		
V-192	21/4 x 11/ ₈₂	1.85		
V-193	2½ x ½ x ½	1.77		
V-194	21/4 x 1/4 x 3/32	1.52		

Half Ovals



Width, Inches	Thickness, Inches	Radius, Inches	Approximate Thickness at Edge, Inches	Weight per Foot, Pounds
2	1/2	13/8	3/64	2.49
2 .	7/16	$1\frac{1}{2}$	3/64	2.16
2	3/8	111/16	3/64	1.84
2	5/16	21/16	3/64	1.56
13/4	7/16	13/16	364	1.90
11/2	3/8	11/16	1/32	1.42
11/2	5/16	13/16	1/32	1.16
11/2	1/4	1½	3/64	.943
11/4	5/16	7/8	1 32	.981
11/4	1/4	1	1/32	.810
11/8	9/32	25/32	1/32	.793
11/8	1/4	27/32	1/32	.720
1	1/4	45/64	1/32	. 630
7/8	1/4	9/16	1/32	. 544
7/8	7/32	5/8	1/32	.485
3/4	7/32	31/64	1/32	.414
3/4	3/16	9/16	1/32	.364
11/16	7 1/32	13/32	1 32	.380
11/16	3/16	29/64	1 32	.321
5/8	3/16	27/64	1/32	.308
5/8	5/32	1/2	1/32	.258
5/8	1/8	19/32	1/32	.200
9/16	9/64	29/64	1/32	.210
1/2	1/8	27/64	1/32	.168
7/16	7/64	25/64	1/32	. 131
3/8	1/8	1/4	1/32	.126
3/8	3/32	23/64	1/32	.098
7.8	7 02	0.1		

NOTE.—For half ovals over 2 inches in width see Special Half Ovals on pages 133 and 134.

Sharp Ovals



Width, Inches	Thickness, Inches	Radius, Inches	Weight per Foot, Pounds
M. I.	•		
1/2	1/4	5/16	297
9/16	9/32	11/32	.376
19/ ₃₂ 5/ ₈	3/8	21/64	.542
5/8	5/16	25/64	.465
3/4	5/16	17/32	.551
3/4	3/8	15/32	. 669
7/8	5/16	11/16	. 637
7/8	3/8	39/64	. 800
7/8	7/16	35/64	.910
1	7/16	11/16	1.029
1	1/2	5/8	1.188
$1\frac{1}{8}$	9/16	45/64	1.504
$1\frac{1}{4}$	5/8	25/32	1.856
$1\frac{1}{2}$	3/4	15/16	2.673

Blunt Ovals



Width,	Thickness,	Long Radius,	Short Radius,	Weight per
Inches	Inches	Inches	Inches	Foot, Pounds
5/8	11/32	7/16	1/16	.557
7/8	5/16	13/16	3/64	.677
7/8	7/16	11/16	1/8	1.020
			7.0	

Hexagons



Width ''a'' across Flats, Inches	Weight per Foot, Pounds	Width "a" across Flats, Inches	Weight per Foot, Pounds
73701	000	$1\frac{3}{32}$	3.522
5/16	.288		3.727
11/32	.348	11/8	3.937
3/8	.414	15/32	4,152
13/32	.486	13/16	4.374
7/16	. 564	17/32	4.601
15/32	. 647	11/4	4.834
1/2	.736	19/32	5.072
17/32	.831	15/16	5.317
9/16	.933	111/32	5.567
19/32	1.038	13/8	5.823
5/8	1.150	113/32	6.085
21/32	1.268	17/16	
11/16	1.392	115/32	6.352
23/32	1.521	1½	6.625
3/4	1.656	19/16	7.189
25/32	1.797	15/8	7.775
13/16	1.944	111/16	8.385
27/32	2.096	13/4	9.018
7/8	2.254	$1^{13}/_{16}$	9.673
29/32	2.418	17/8	10.352
15/16	2.588	115/16	11.053
31/32	2.763	2	11.778
1	2.945	21/16	12.525
11/32	3.131	21/4	14.906
11/16	3.324	25/16	15.747
	April 10 mm	-1601-10	101
20010000	dim-	g ner priest and	

Half Rounds



Diameter, Inches	Weight per Foot, Pounds	Diameter, Inches	Weight per Foot, Pounds
5/16	.131	1	1.335
3/8	.188	11/8	1.690
7/16 1/2	.256	11/4	2.086
9/16 5/8	.423 .522	11/2	3.004
11/ ₁₆ 3/ ₄	.631 .751	13/4	4.089
7/8	1.022	2	5.340

Nut Steel Flats





All sizes from 2%" x 1%6" to %6" x ½2", inclusive, can be furnished. Weights appear in tables of Flat Rolled

Steel, pages 167 to 170
inclusive.

Sizes which may be obtained in coils:

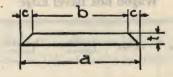
½" to ½" wide x¼" to ½" thick.

Sizes ½" x 2¾4" and lighter—220 lb. coils.

Balance of sizes 150 to 300 lb. coils—300 lb. preferred.

JONES & LAUGHLIN STEEL COMPANY

Wagon Box Bevel Edge



Section Index	a Inches	b Inches	c Inches Approx.	t Gauges or Inches	Weight per Foot, Pounds
	20	1121			-71
V-27	13/8	7/8	1/4	3/8	1.43
	535347	1172	31	1 200	1957
V-32	11/4	11/16	9/32	5/16	1.03
V-33	11/4	13/16	7/32	1/4	.88
		0	0 11		The state of
V-34	11/4	15/16	5/32	3/16	.70
V-35	11/4	15/16	5/32	1/8	.47
V-36	11/4	15/16	5/32	No. 12	.41
V-37	11/4	15/16	5/32	No. 13	.36
V-38	11/4	15/16	5/32	No. 14	.31
			10.00	1100000	70000
V-43	11/8	13/16	5/32	3/16	. 62
V-44	11/8	13/16	5/32	1/8	.42
V-45	11/8	13/16	5/32	No. 12	.36
V-46	11/8	13/16	5 32	No. 13	.32
V-47	11/8	13/16	5/32	No. 14	.28
100	100000	10000			100-1
V-52	1	. 11/16	5/32	3/16	.54
V-53	1	11/16	5/32	1/8	.36
V-54	1	11/16	5/32	No. 12	.32
V-55	1	11/16	5/32	No. 13	.28
V-56	1	11/16	5/32	No. 14	.24

JONES & LAUGHLIN STEEL COMPANY

Wagon Box Bevel Edge

Section Index	a Inches	b Inches	c Inches Approx.	Gauges or Inches	Weight, per Foot, Pounds
V-60	7/8	1/2	3/16	7/82	.52
V-61 V-62 V-63 V-64 V-65 V-69 V-70 V-71 V-72 V-73	7/8 7/8 7/8 7/8 13/16 13/16 13/16	9/16 9/16 9/16 9/16 9/16 1/2 1/2 1/2 1/2	5/52 5/52 5/52 5/52 5/52 5/52 5/52 5/52	3/6 1/8 No. 12 No. 13 No. 14 3/6 1/8 No. 12 No. 13 No. 14	.46 .31 .27 .24 .21 .42 .28 .25 .22 .19
V-78 V-79 V-80 V-81 V-82 V-88 V-89 V-90 V-91 V-92	3/4 3/4 3/4 3/4 3/4 5/8 5/8 5/8 5/8	716 716 716 716 716 916 916 916	5 % 2 5 % 2 5 % 2 5 % 2 5 % 2 5 % 2 5 % 2 5 % 2 5 % 2 5 % 2 5 % 2	%6 1/8 No. 12 No. 13 No. 14 %8 No. 12 No. 12 No. 13 No. 14 No. 14	.38 .26 .23 .20 .17 .30 .20 .18 .16

Rounds



%6" to 1" advancing by 64ths. 1½2" to 2" advancing by 32nds. 2½6" to 7½" advancing by 16ths.



Bolt and rivet rounds can also be rolled to various decimal sizes.

Coiled Rounds

Diameter	Weight	Length	Diameter	Weight	Length
of Bar,	of Coil,	of Bar,	of Bar,	of Coil,	of Bar,
Inches	Pounds	Feet	Inches	Pounds	Feet
3/16 7/52 15/64 1/4 9/52 19/64 5/16 21/64 11/3/2 23/64 3/8 25/64 13/3/2 27/64	6 10 12 15 19 150 150 150 150 150 150 or 300 150 or 300 150 or 300 150 or 300	60 70 75 80 80 415 570 515 470 440 400 or 800 366 or 732 338 or 676 314 or 628 250 or 500	31,64 1/2 17,52 35,64 9/6 39,64 5/8 41,64 21,52 43,64 11,16 45,64 23,52 47,64 3/4	150 or 300 150 or 300 150 or 300 150 or 300 200 or 400 200 or 400	235 or 470 224 or 448 195 or 390 185 or 370 236 or 472 200 or 400 192 or 384 183 or 366 174 or 348 166 or 332 159 or 318 151 or 302 145 or 290 139 or 278 133 or 266

NOTE.—The larger weight coils are preferable for sizes % inch to % inch, inclusive.

JONES & LAUGHLIN STEEL COMPANY

Squares

3 "	to	2"	advancing	by	64ths.	
275"	to	5"	advancing	by	16ths.	

Maximum Lengths

ROUND	3	SQUARE	es
Diameter, Inches	Length, Feet	Size, Inches	Length, Feet
3/6 to 7/8 15/6 to 21/6 21/8 to 41/2 42/16 to 51/2 55/16 55/8 511/6 55/8 51/6 61/8 63/16 61/8 63/16 61/4 63/16 61/4 63/16 61/4 63/16 61/4 63/16 61/4 63/16 61/4 63/16 61/4 63/16 61/4 63/16 61/4 63/16 61/4 63/16 61/4 63/16 61/4 63/16 61/4 63/16 61/4 63/16 61/4 63/16 61/4 63/16 61/4 63/16 61/4 63/16 61/4 61/4 63/16 61/4 61/4 63/16 61/4	40 60 48 46 44 43 42 41 40 39 38 37 36 35 34 33 32 31 30 29 28 27 26 25	%6 to 11/6 %4 to 2 21/6 to 415/6	40 60 48 45

NOTE.—Longer lengths can be obtained only by special arrangement.

Cold-Twisted Square Concrete Bars

Unless otherwise specified, cold-twisted bars will conform with Manufacturers' Standard Specifications.



Size, Inches	Area, Square Inches	Weight per Foot, Pounds	Maximum Length, Feet
1/4 5/16 3/8 7/16 1/2 9/16 5/8 11/16	.0625 .0977 .1406 .1914 .2500 .3164 .3906 .4727	.212 .332 .478 .651 .850 1.076 1.328 1.607	40 40 40 40 40 40 40 40
3/4 13/16 7/8 15/16 1 11/8 11/4 13/8 11/2	.5625 .6602 .7656 .8789 1.0000 1.2656 1.5625 1.8906 2.2500	1.913 2.245 2.603 2.988 3.400 4.303 5.312 6.428 7.650	60 60 60 60 60 60 60 60

NOTE.—All intermediate sizes can be furnished. For weights, see Table of Squares, pages 213 to 215. Write for circular.

Longer lengths furnished only by special arrangement.

Diamond Bars For Reinforcing Concrete



Sizes, Inches		Inches, Equivalent to	Foot, Pounds Equivalent to	Weight per Foot, Pounds Equivalent to Plain Rounds	Length,
3/8	. 1406	.1104	.478	.376	40
7/16	.1914	.1503	. 651	.511	40
1/2	.2500	. 1963	.850	.668	40
5/8	.3906	. 3068	1.328	1.043	40
3/4	. 5625	.4418	1.913	1.502	60
7/8	.7656	. 6013	2.603	2.044	60
1	1.0000	.7854	3.400	2.670	60
11/8	1.2656	.9940	4.303	3.379	60
11/4	1.5625		5.312		60

Weights and areas of Diamond Bars are equal to plain bars of like denominations.

Longer lengths furnished only by special arrangement.

Unless otherwise specified, bars for Concrete Reinforcement will conform with the Structural Grade of Manufacturers' Standard Specifications.

IMPORTANT.—When ordering be sure to state whether bars equivalent to areas of plain rounds or plain squares are wanted.

Round Edge Flats

k---Overall-->

Measured Over All

The face measurement of Round Edge Flats is determined by subtracting .42 of the thickness from the overall width.

Width, Inches	Thickness, Inches	Width, Inches	Thickness, Inches
1/2	1/8 to 5/16	21/8	1/4 to 1
9/16	1/8 to 5/16	23/16	½ to 1
5/8	1/8 to 5/16	$2\frac{1}{4}$.	½ to 1
11/16	1/8 to 3/8	25/16	1/4 to 1
3/4	1/8 to 3/8	23/8	½ to 1
13/16	1/8 to 7/16	27/16	½ to 1
7/8	1/8 to 7/6	$2\frac{1}{2}$	1/4 to 1
15/16	· ½ to ½	25/8	½ to 1
1	1/8 to 1/2	23/4	1/4 to 1
11/16	1/8 to 1/2	27/8	½ to 1
11/8	3/6 to 1/2	3	1/4 to 1
13/16	3/16 to 3/4	31/8	1/4 to 1
11/4	3/16 to 3/4	31/4	1/4 to 1
15/16	3/16 to 3/4	33/8	1/4 to 1
13/8	3/16 to 3/4	$3\frac{1}{2}$	1/4 to 1
17/16	3/6 to 3/4	35/8	3/8 to 1
11/2	3/16 to 3/4	33/4	3/8 to 1
1%	3/16 to 3/4	37/8	3/8 to 1
15/8	% to 3/4	4	3/8 to 1
111/16	3/16 to 3/4	41/8	3/8 to 1
13/4	3/16 to 1	41/4	3/8 to 1
113/16	1/4 to 1	43/8	3/8 to 1
17/8	1/4 to 1	41/2	3/8 to 1
115/16	1/4 to 1	45/8	3/8 to 1
2	1/4 to 1	43/4	3/8 to 1
$2\frac{1}{16}$	½ to 1	* 5	11/8

For weights see pages 222 to 225. * Special-rolled with full radius.

Round Edge Tire



Measured On The Face

The overall width of Round Edge Tire Steel is determined by adding .42 of thickness to the face measurement.

-				
	Width, Inches	Thickness, Inches	Width, Inches	Thickness, Inches
	1/2	1/8 to 5/16	2	½ to 1
	9/16	1/8 to 5/16	21/16	½ to 1
	5/8	1/8 to 5/16	21/8	1/4 to 1
	11/16	1/8 to 3/8	23/16	1/4 to 1
	3/4	1/8 to 3/8	21/4	1/4 to 1
	13/16	1/8 to 7/16	25/16	1/4 to 1
	7/8	1/8 to 7/16	23/8	1/4 to 1
	15/16	1/8 to 1/2	27/16	1/4 to 1
	1	1/8 to 1/2	21/2	½ to 1
	11/16	1/8 to 1/2	25/8	½ to 1
	11/8	8/16 to 1/2	23/4	½ to 1
	13/16	3/16 to 3/4	27/8	½ to 1
	11/4	3/16 to 3/4	3	½ to 1
	15/16	3/16 to 3/4	31/8	½ to 1
	13/8	3/16 to 3/4	31/4	½ to 1
	17/16	3/16 to 3/4	33/8	½ to 1
	$1\frac{1}{2}$	3/16 to 3/4	3½	½ to 1
	19/16	3/16 to 3/4	35/8	3% to 1
	15/8	3/16 to 3/4	33/4	3/8 to 1
	111/16	% to 3/4	37/8	3/8 to 1
	13/4	3/16 to 1	4	3/8 to 1
	113/16	1/4 to 1	41/8	3/8 to 1
	17/8	½ to 1	41/4	3/8 to 1
	115/16	1/4 to 1	43/8	3% to 1
			4½	3/8 to 1
	411			

For weights see pages 226 to 229.

Hoops and Bands

Sizes 6 inches wide and under by thickness lighter than $\frac{1}{4}$ inch as listed page 148.

Square Edged Flats

- 1/2 inch to 1 inch, wide x 1/8 inch up to width.
- 11/8 inches to 2 inches, wide x 3/16 inch up to width.
- 21/8 inches to 23/8 inches, wide x 1/4 inch up to 2 inches.
- 21/2 inches to 31/8 inches, wide x 1/4 inch up to width.
- 3¼ inches to 4 inches, wide x ¼ inch up to 3 inches.
- 41/4 inches to 41/8 inches, wide x 1/2 inch up to 2 inches.

Flat Rolled Steel

:				
	Width, Inches	Thickness, Inches	Width, Inches	Thickness, Inches
	1/2 5/8 3/4 1 1 1/8 1 1/4 1 1/8 1 1/8 1 1/8 2 1/8 2 1/8 2 1/8 2 1/8 2 2/8 2 2/8 3 3/4 3 3/4 3/4 3/4 3/4 3/4 3/4 3/4 3/4 3/4 3/4	.049 to 7/6 .049 to 19/6 .049 to 11/6 .049 to 13/6 .049 to 13/6 .049 to 15/6 .049 to 1 .049 to 11/8 .058 to 15/8 .058 to 15/8 .065 to 2 .065 to 3/4 .065 to 2 .065 to 3/4 .065 to 3 .109 to 3	43/4 47/8 5 51/4 53/8 51/2 53/8 61/4 61/2 63/4 71/2 73/4 77/8 8 9 91/2 93/4 10 101/2 11 111/2 113/4 12 121/2 13 135/8	18 to 2
	4 1/8 4 1/4 4 3/8 4 1/2 4 5/8	. 109 to 2 . 109 to 2 . 109 to 2 . 109 to 2 . 125 to 2 . 1/8 to 2	13 ³ / ₄ 14 15 16	.180 to 2 .180 to 2 !4 to 2 % to 2 % to 2

NOTE.—For other widths, see Table of Universal Mill Plates, page 149.
Thicknesses greater than those given may be arranged for in some of the above sizes.

Universal Mill Plates Sizes, with Maximum Lengths in Feet

We groove-roll various widths from 61/4 inches to 16 inches

113		WII	OTH, INCH	IES	
Thickness, Inches	14-17 Inclusive	18-21 Inclusive	22	23	24-30 Inclusive
N 2/10/18/	71		6 5 8 6 8	1000	
1/4	85	85	85	85	85
5/16	85	85	85	85	85
3/8	85	85	85	85	. 85
7/16	85	85	85	85	85
1/2	85	85	85	85	85
9/16	85	85	85	85	85
5/8	85	85	85	85	85
11/16	85	85	85	85	85
3/4	85	85	85	85	85
13/16	- 85	85	85	85	85
7/8	85	85	85	85	85
15/16	85	85	85	85	85
1	85	85	85	85	83
11/8	85	85	85	85	78
11/4	85	85	85 -	85	70
13/8	85	85	83	78	64
1½	80	80	76	71	58
15/8	* 73	73	70	68	53
13/4	68	68	65	61	48
17/8	64	64	61	56	46
2	60	60	56	53	43
3 3 7 7 7 7 7					- 1

NOTE.—For intermediate widths not shown in above table, use length of next greater width.

Widths over 30 inches up to 42 inches subject to special consideration.

List of Extreme Sizes of Sheared Plates

11	Thickness,		O.L		107	WIDTH	OF	PLATES, INCHES	INCHE	202				Thickness
120 156 180 192 204 216 228 240 252 264 *No. 120 156 180 192 204 216 228 240 252 264 276 † 240 252 292 294 216 228 240 252 264 276 † 240 252 292 294 216 228 240 252 264 276 † 360 360 420 420 420 420 420 420 360 360 360 420 <td< th=""><th>Inches</th><th>89</th><th>64</th><th>09</th><th>56</th><th>52</th><th>48</th><th>44</th><th>40</th><th>. 36</th><th>32</th><th>28</th><th>24</th><th>Inches</th></td<>	Inches	89	64	09	56	52	48	44	40	. 36	32	28	24	Inches
168 180 192 204 216 228 240 252 264 276 1	No. 11			144	168	180	192	204	216	228	240	252	264	*No. 11
120 156 180 192 204 216 228 240 252 264 276 288 490 252 264 276 288 490 252 264 276 288 476 288 476 288 476 288 476 288 476 288 476 288 476 288 476 288 476 288 476 288 476 480 <td>01 .</td> <td></td> <td>11</td> <td>168</td> <td>180</td> <td>192</td> <td>204</td> <td>216</td> <td>228</td> <td>240</td> <td>252</td> <td>264</td> <td>276</td> <td></td>	01 .		11	168	180	192	204	216	228	240	252	264	276	
120 156 168 180 192 216 228 240 252 264 276 288 300 300 300 420 <td>6</td> <td></td> <td></td> <td>168</td> <td>180</td> <td>192</td> <td>204</td> <td>216</td> <td>228</td> <td>240</td> <td>252</td> <td>264</td> <td>276</td> <td>6 +</td>	6			168	180	192	204	216	228	240	252	264	276	6 +
240 252 292 204 216 228 240 264 288 300 300 300 360 360 360 420 420 420 420 420 360 360 360 360 360 360 360 360 420	00	120	156	168	180	192	216	228	240	252	264	276	288	00
360 360 420 <td>3/6</td> <td>240</td> <td>252</td> <td>292</td> <td>204</td> <td>216</td> <td>228</td> <td>240</td> <td>264</td> <td>288</td> <td>300</td> <td>300</td> <td>300</td> <td>80</td>	3/6	240	252	292	204	216	228	240	264	288	300	300	300	80
360 480 420 420 420 420 420 420 420 420 420 420 420 420 480 <td>14</td> <td>360</td> <td>360</td> <td>420</td> <td>420</td> <td>420</td> <td>420</td> <td>420</td> <td>420</td> <td>360</td> <td>360</td> <td>420</td> <td>420</td> <td>7</td>	14	360	360	420	420	420	420	420	420	360	360	420	420	7
480 480 <td>5/6</td> <td>360</td> <td>360</td> <td>420</td> <td>420</td> <td>420</td> <td>420</td> <td>420</td> <td>420</td> <td>360</td> <td>360</td> <td>420</td> <td>420</td> <td>20</td>	5/6	360	360	420	420	420	420	420	420	360	360	420	420	20
480 480 <td>/00 /00</td> <td>480</td> <td>69</td>	/00 /00	480	480	480	480	480	480	480	480	480	480	480	480	69
480 480 <td>2/16</td> <td>480</td> <td></td>	2/16	480	480	480	480	480	480	480	480	480	480	480	480	
480 480 <td>72</td> <td>480</td> <td>7</td>	72	480	480	480	480	480	480	480	480	480	480	480	480	7
480 480 <td>3/6</td> <td>480</td> <td>6</td>	3/6	480	480	480	480	480	480	480	480	480	480	480	480	6
420 480 <td>100</td> <td>480</td> <td>10</td>	100	480	480	480	480	480	480	480	480	480	480	480	480	10
420 480 <td>11/16</td> <td>420</td> <td>480</td> <td>11,</td>	11/16	420	480	480	480	480	480	480	480	480	480	480	480	11,
420 480 <td>14</td> <td>420</td> <td>480</td> <td>. 60</td>	14	420	480	480	480	480	480	480	480	480	480	480	480	. 60
420 480 <td>13/6</td> <td>420</td> <td>480</td> <td>18,</td>	13/6	420	480	480	480	480	480	480	480	480	480	480	480	18,
420 480 <td>100</td> <td>420</td> <td>480</td> <td>(4)</td>	100	420	480	480	480	480	480	480	480	480	480	480	480	(4)
300 300 300 312 324 360 312 312 312 300 300 288 300 312 312 300 300 276 <td>1</td> <td>420</td> <td>480</td> <td>1</td>	1	420	480	480	480	480	480	480	480	480	480	480	480	1
276 288 300 30 312 312 312 300 300 288 300 312 312 312 300 300 288 300 312 312 300 300 276	11/4	300	300	300	312	324	360	360	360	360	300	300	360	11%
264 276 276 300 288 276 300 300 300 276 276 276 192 216 240 252 252 276	1 3%	276	288	300	300	312	312	312	300	300	288	300	312	18
192 216 240 252 252 276 <td>11/2</td> <td>264</td> <td>276</td> <td>276</td> <td>300</td> <td>288</td> <td>276</td> <td>300</td> <td>300</td> <td>300</td> <td>276</td> <td>276</td> <td>276</td> <td>117</td>	11/2	264	276	276	300	288	276	300	300	300	276	276	276	117
180 192 192 240 240 252 240 <td>1 2%</td> <td>192</td> <td>216</td> <td>240</td> <td>252</td> <td>252</td> <td>276</td> <td>276</td> <td>276</td> <td>276</td> <td>276</td> <td>276</td> <td>276</td> <td>1.8</td>	1 2%	192	216	240	252	252	276	276	276	276	276	276	276	1.8
144 156 180 192 192 240 <td>134</td> <td>180</td> <td>192</td> <td>192</td> <td>240</td> <td>240</td> <td>252</td> <td>252</td> <td>252</td> <td>252</td> <td>252</td> <td>252</td> <td>252</td> <td>1.8</td>	134	180	192	192	240	240	252	252	252	252	252	252	252	1.8
144 156 180 180 190 192 192 192 192 192 192 192	1 1/8	144	156	180	192	192	192	240	240	240	240	240	240	21
	. 2	144	156	180	180	180	192	192	192	192	192	192	192	22

* U.S. Standard. † Birmingham. Plates of greater dimensions than shown in this table may be submitted for special consideration. All our plates are accurately straightened by the most improved straightening methods known.

List of Extreme Sizes of Sheared Plates

П

		1	M	WIDIH	OF PLA	FLATES, INCHES	CHES				Thickness,
110	106	102	86	94	06	88	84	80	92	72	Inches
											*No. 11
											6 +
										,	×
											1/2
					216	240	300	300	360	360	74
			240	252	264	276	288	300	300	360	2/6
180	192	240	252	264	300	324	360	420	420	480	800
081	192	240	300	300	324	360	384	436	436	480	2/16
192	216	240	300	312	324	360	384	420	420	480	122
192	216	240	300	312	324	360	384	400	420	480	16
192	216	240	300	312	324	360	384	400	420	420	% A
192	216	240	300	312	324	360	360	400	400	420	31/16
192	216	240	300	300	312	360	360	400	400	420	200
192	216	240	300	300	312	360	360	372	384	420	13/6
192	216	240	300	300	312	360	360	372	384	420	1/2
192	216	240	252	264	288	300	324	360	360	420	1.
77	180	180	192	192	204	276	276	276	276	300	11/4
	180	180	192	192	204	240	240	250	252	264	13%
	180	180	192	192	204	240	240	228	240	264	13/2
		120	120	120	192	132	192	192	192	252	15%
		108	108	108	132	120	180	180	180	180	1 34
			4	108	120	120	144	144	144	144	178
				96	108	120	120	126	132	144	5

Plates of greater dimensions than shown in this table may be submitted for special consideration. All our plates are accurately straightened by the most improved straightening methods known.

JONES & LAUGHLIN STEEL COMPANY

Circular Plates

Thickness, Inches	Maximum Diameter, Inches	Thickness, Inches	Maximum Diameter, Inches
1/8	65	9/16	103
3/16	72	5/8	103
1/4	90	11/16	103
5/16	100	3/4	
3/8	103	up to }	103
7/16	103	1½	
1/2	103	4 44 1 4	

Cold Finished Steel Rounds

For Shafting, Screw Stock, Piston Rods, Etc.

Made accurately to size and carefully straightened

DIAMI	ETER	Weight	DIAM	ETER	Weight
Inches	Mm.	per Foot	Inches	Mm.	per Foot
			11117		
1/8	3.17	. 042	23/32	18.26	1.379
1/8 9/64	3.57	. 053	47/84	18.65	1.440
5 32 11 64 3 16 13 64	3.97	. 065	3/4	19.05	1.502
11/24	4.37		49/64	19.45	1.565
3/4	4.76		25 32	19.84	1.630
13/	5.16	.110	51/64	20.24	1.696
7/-	5.56	128	13/16	20.64	1.763
15/	5.95	147	53/64	21.03	1.831
64	6.35	167	27/32	21.44	1:901
174		.188	55%	21.83	1.972
64	6.75		55/64	22.22	2.044
7 32 1564 1 4 1764 9 32 1964	7.14	.211	57/8	22.62	2.118
13/64	7.54	.235	57 ₆₄ 29 ₃₂ 59 ₆₄	23.02	2.193
3/16	7.94	.261	50/32	23.42	$\frac{2.133}{2.270}$
21/64	8.33	.288	64		2.347
516 21/64 11/32 23/64 3/8 25/64	8.74	.316	15/16	23.81	
23/64	9.13	.345	61/64	24.21	2.426
3/8	9.52	.376	31/32	24.61	2.506
25/64	9.92	.407	63/64	25.00	2.587
13 32	10.32	.441	1	25.40	2.670
27/64	10.72	.475	11/32	26.19	2.840
7/16	11.11	.511	1^{1}_{16} 1^{3}_{32}	26.99	3.014
29 ₆₄ 15 ₃₂ 31 ₆₄	11.51	. 548	13/32	27.78	3.194
15/22	11.91	. 587	11/8	28.57	3.379
31/84	12.30	.627	1532	29.37	3.570
1/9	12.70	.668	13/16	30.16	3.766
33/64 17/32	13.10	.710	17/32	30.96	3.966
17/20	13.49	.754	11/4	31.75	4.173
35,64	13.89	.799	1932	32.54	4.384
9/10	14.29	.845	15/16	33.34	4.600
9/16 37/64	14.68	.893	111/32	34.14	4.822
19/		.941	13/8	34.92	5.049
39/.		.992	113/32	35.72	5.281
64		1.043	17/16	36.51	5.518
19 ₃₂ 39 ₆₄ 5 ₈ 41 ₆₄		1.096	115/32	37.31	5.761
21/		1.150	11/2	38.10	6.008
21/32		4 20 4	117/32	38.89	6.261
43/64		$\frac{1.205}{1.262}$	19/16	39.69	6.520
11/16 45/64	24.20	1.320	119/32	40.48	6.783
40/04	17.86	1.340	1 1/32	10.40	0.100

Cold Finished Steel Rounds For Shafting, Screw Stock, Piston Rods, Etc.

Made accurately to size and carefully straightened

DIAM	ETER	Weight	DIAM	ETER	Weight
Inches	Mm.	per Foot	Inches	Mm.	per Foot
		- 11			
15/8	41.27	7.051	311/16	93.66	36.31
1^{21}_{32}	42.09	7.325	33/4	95.25	37.56
111/16	42.86	7.604	313/16	96.84	38.81
$1^{23}/_{32}$	43.66	7.889	37/8 315/16	98.42	40.10
13/4	44.45	8.178	315/16	100.01	41.40
125/32	45.24	8.473	4	101.60	42.73
113/16	46.04	8.773	41/16	103.19	44.07
127/32	46.83	9.078	4 ½ 43/16	104.77	45.44
$\frac{17/8}{1^{29/32}}$	47.62	9.388	43/16	106.36	46.83
115/16	48.42	9.704	41/4	107.95	48.24
131/16	50.01	10.02 10.35	45/16	109.54	49.66
2	50.80	10.68	43/8 47/16	111.12	51.11
21/16	52.39	11.36	41/2	112.71 114.30	$52.58 \\ 54.07$
21/8	53.97	12.06	49/16	115.89	55.59
23/16	55.56	12.78	45/8	117.47	57.12
21/4	57.15	13.52	411/16	119.06	58.67
$\frac{2\frac{1}{4}}{2\frac{5}{16}}$	58.74	14.28	43/4	120.65	60.25
23%	60.32	15.07	413/16	122.24	61.84
23/8 27/16 21/2 29/16	61.91	15.86	47/6	123.82	63.46
21/2	63.50	16.69	47/8 415/16	125.41	65.10
29/6	65.09	17.53	5	127.00	66.76
2%	66.67	18.40	51/8 51/4 53/8	130.17	70.14
211/10	68.26	19.29	51/4	133.35	73.60
$2\frac{3}{4}$ 2^{13} 16	69.85	20.20	53/8	136.52	77.15
$2^{13}/_{16}$	71.44	21.12	5 ¹ / ₂ 5 ⁵ / ₈	139.70	80.77
21/2	73.02	22.07	55/8	142.87	84.49
215/16	74.61	23.04	53/4	146.05	88.29
3	76.20	24.03	57/8	149.22	92.17
31/16	77.79	25.04	6	152.40	96.14
31/8	79.37	26.08	61/8	155.57	100.2
33/16	80.96	27.13	6½ 6¼ 6¾ 6¾	158.75	104.3
3½ 3½ 35/16	82.55	28.20	63/8	161.92	108.5
23/	84.14 85.72	29.30	$\frac{61/2}{65/8}$	165.10	112.8
33/8	85.72	$30.42 \\ 31.56$	0%	168.27	117.2
3 ¹ / ₁₆ 3 ¹ / ₂ 3 ⁹ / ₁₆	88.90	31.50	63/4 67/8	171.45	121.7
39/2	90.49	33.90	7/8	174.62 177.80	126.2
35/8	92.07	35.09	-	177.80	130.9
0/8	32.01	00.00	- 1		

JONES, & LAUGHLIN STEEL COMPANY



Cold Finished Steel Hexagons Special Steel for Automatic Machine Work

SIZE (LEA	ST DIAM.)	Weight per	SIZE (LE	AST DIAM.)	Weight per
Inches	Mm.	Foot, Pounds	Inches	Mm.	Foot, Pounds
1 1 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	4.76 5.56 6.35 7.14 7.94 8.74 9.52 10.32 11.11 11.270 13.49 14.29 15.08 15.87 17.46 19.05 20.64 22.22 23.81 25.40	.104 .141 .183 .233 .288 .348 .414 .486 .564 .647 .736 .831 .933 1.038 1.150 1.392 1.656 1.944 2.258 2.945	1 1/6 1 1/6	26.99 28.57 30.16 31.75 33.34 34.92 36.51 38.10 39.69 41.27 42.86 44.45 46.04 47.62 49.21 50.80 52.39 53.98 55.56 57.15	3.324 3.727 4.152 4.601 5.072 5.567 6.085 7.189 7.775 8.385 9.018 9.673 10.352 11.053 11.778 12.525 13.296 14.089 14.906



Cold Finished Steel Squares For Keys, Splines, Square Shafts, Etc.

SQU	JARE	Weight per	sq	UARE	Weight per
Inches	Mm.	Foot, Pounds	Inches	Mm.	Foot, Pounds
1 1 2 1 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 1 2 1 1 1 1 2 1 1 1 2 1 1 1 1 1 2 1	4.76 5.56 6.35 7.14 7.94 8.74 9.52 11.11 12.70 14.29 15.87 17.46 19.05 20.64 22.22 23.81 25.40	.120 .163 .212 .269 .332 .402 .478 .651 .850 1.08 1.33 1.61 1.92 2.25 2.60 2.99 3.40	1 1/6 1 1/8 1 1/8 1 1/8 1 1/8 1 1/8 1 1/8 2 1/4 2 2/3 3 1/4 3 3/4 4	26 . 99 28 . 57 31 . 75 34 . 92 38 . 10 41 . 27 44 . 45 50 . 80 57 . 15 63 . 50 69 . 85 76 . 20 82 . 55 88 . 90 95 . 25	3.84 4.31 5.32 6.43 7.65 8.98 10.42 13.61 17.22 21.26 25.72 30.61 35.93 41.67 47.84

NOTE.—Sizes below 21/2 inches have sharp corners. Sizes 21/2-inch and over, the corners are sightly rounded.

JONES & LAUGHLIN STEEL COMPANY

Cold Finished Steel Flats

For Finger Bars, Knife Backs, Keys, Engine Guides, Elevator Slides, Etc.

Thickness, Inches	Width, Inches
½ to 1½	Under 7
1⁄8 to 2	Under 5
½ to 3	Under 4

Tables of Weights

The following tables are for reference only and have no bearing on the range of sizes produced by this Company.

The Weight of one cubic foot of steel is assumed to be approximately 489.6 pounds; weight of one cubic inch, 0.2833 pounds.

Thickness in Gauges from No. 24 to No. 1-Widths from % inch to 12 inches Weights of Flat Rolled Steel, Pounds Per Lineal Foot

	13/16	.0608 .0691 .0774 .0884	.0967 .1160 .1354 .1602	.1796 .1989 .2293 .2624	.3011 .3315 .3702 .4089	.4558 .4973 .5608 .6078	.6575 .7155 .7846 .8288
	25/32	.0584 .0664 .0744 .0850	.0930 .1116 .1302 .1541	.1727 .1913 .2205 .2523	.2895 .3188 .3559 .3931	.4383 .4781 .5392 .5844	.6322 .6880 .7544 .7969
	3/4	.0561 .0638 .0714 .0816	.0893 .1071 .1250 .1479	.1658 .1836 .2117 .2423	.2780 .3060 .3417 .3774	.4208 .4590 .5177 .5610	.6069 .6605 .7242 .7650
	23/32	.0538 .0611 .0684 .0782	.0855 .1026 .1197 .1417	.1588 .1760 .2028 .2322	.2933 .3275 .3617	.4032 .4399 .4961 .5376	.5816 .6329 .6940 .7331
	11/16	.0514 .0584 .0655	.0818 .0982 .1145	.1519 .1683 .1940 .2221	.2548 .2805 .3132 .3460	.3857 .4208 .4745 .5143	.5563 .6639 .7013
	21/32	.0491 .0558 .0625	.0781 .0937 .1093 .1294	.1450 .1607 .1852 .2120	.2432 .2678 .2990 .3302	.3682 .4016 .4529 .4909	.5310 .5779 .6337 .6694
70	5/8	.0468 .0531 .0595	.0893 .0893 .1041	.1381 .1530 .1764 .2019	.2316 .2550 .2848 .3145	.3506 .3825 .4314 .4675	.5058 .5504 .6035
WIDTH, INCHES	19/32	.0444 .0505 .0565 .0646	.0848 .0848 .0989	.1312 .1454 .1676 .1918	.2423 .2423 .2705	.3331 .3634 .4098 .4441	.4805 .5229 .5733 .6056
отн, 1	91/6	.0421 .0478 .0536 .0612	.0803 .0803 .0937 .1109	.1243 .1377 .1587 .1817	.2085 .2295 .2563 .2831	.3156 .3443 .3882 .4208	.4552 .4953 .5432 .5738
WI	17/32	.0397 .0452 .0506 .0578	.0632 .0759 .0885 .1048	.1174 .1301 .1499 .1716	.1969 .2168 .2420 .2673	. 2980 . 3251 . 3667 . 3974	.4299 .4678 .5130 .5419
	1/2	.0374 .0425 .0476 .0544	.0595 .0714 .0833 .0986	.1105 .1224 .1411 .1615	.1853 .2040 .2278 .2516	.2805 .3060 .3451 .3740	.4046 .4403 .4828 .5100
	15/32	.0351 .0398 .0446 .0510	.0558 .0669 .0781 .0924	.1036 .1148 .1323 .1514	.1737 .1913 .2136 .2359	.2630 .2869 .3235 .3506	.4128 .4526 .4781
	1/16	.0327 .0372 .0417 .0476	.0521 .0625 .0729 .0863	.0967 .1071 .1235 .1413	.1621 .1785 .1993 .2202	.2454 .2678 .3020 .3273	.3540 .3853 .4225 .4463
	13/32	.0345 .0345 .0387 .0442	.0483 .0580 .0677 .0801	.0898 .0995 .1146	.1506 .1658 .1851 .2044	.2279 .2486 .2804 .3039	.3287 .3577 .3923 .4144
	18/8	.0281 .0319 .0357 .0408	.0446 .0536 .0625 .0740	.0829 .0918 .1058	.1390 .1530 .1709 .1887	.2104 .2295 .2588 .2588	.3035 .3302 .3621 .3825
Thickness,	B. W. G.	24 22 21 21	20 119 118	16 15 14 13	11 11 9	01-010	4001-

	19/32	.0958 .1089 .1220 .1394	.1525 .1830 .2135 .2527	.2832 .3137 .3616 .4138	.4748 .5228 .5837 .6447	.7188 .7841 .8843 .9584	1.0368 1.1283 1.2372 1.3069
	11/4	.0935 .1063 .1190 .1360	.1488 .1785 .2083 .2465	.2763 .3060 .3528 .4038	.4633 .5100 .5695 .6290	.7013 .7650 .8628 .9350	.0115 .1008 .2070 .2750
	17/32	0912 1036 1160 1326	.1450 .1740 .2030 .2403	.2693 .2984 .3439 .3937	.4517 .4973 .5553 .6133	.6837 .7459 .8412	. 9862 . 0732 . 1768 . 2431
	13/16	0888 1009 1131 1292	.1413 .1696 .1978 .2342	.2624 .2907 .3351 .3836	.4401 .4845 .5410 .5976	.6662 .7268 .8196 .8883	. 9609 . 0457 . 1467 . 2113
	15/32	0865 0983 1101 1258	1376 1651 1926 2280	2555 2831 3263 3735	4285 4718 5268 5818	.6487 .7076 .7980 .8649	.9356 .01821 .11651
	1 1/8	0842 0956 1071 1224	1339 1607 1874 2219	2486 2754 3175 3634	.4169 .4590 .5126	.6311 .6885 .7765 .8415	9104 9907 0863 1475
	13/32	0818 0930 1041 1190	1302 1562 1822 2157	2417 2678 3087 3533	.4053 .4463 .4983 .5504	.6136 .6694 .7549 .8181	.8851 .9632 .0561 .1156
SHENT		0795 0903 1012 1156	1264 1517 1770 2095	2348 2601 2998 3432	.3938 .4335 .4841 .5347	.5961 .6503 .7333 .7948	.8598 .9356 .0260 1
ONI HTG	11/32 1	0771 0877 0982 1122	1227 1473 1718 2034	2279 2525 2910 3331	3822 4208 4698 5189	.5785 .6311 .7118 .7714	.8345 .9081 .9958 .0519
WIDTH	1	0748 0850 0952 1088	1190 1428 1666 1972	2210 2448 2822 3230	3706 4080 4556 5032	.5610 .6120 .6902 .7480	.8092 .8806 .9656 .0200
	31/32	0725 0823 0922 1054	1153 1383 1614 1910	2141 2372 2734 3129	3590 3953 4414 4875	.5435 .5929 .6686 .7246	.8531 .8531 .9354 .9881
	5/16 3	0701 0797 0893 1020	11116 1339 1562 1849	2072 2295 2646 3028	3474 3825 4271 4718	.5259 .5738 .6471 .7013	7586 .8256 .9053 .9563
	19/32	0678 0770 0863 0986	1078 1294 1510 1787	2003 2219 2557 2927	.3359 .3698 .4129 .4560	.5084 .5546 .6255 .6779	.7333 .7980 .8751 .9244
	7/8	0655 0744 0833 0952	1041 1250 1458 1726	1934 2142 2469 2826	.3243 .3570 .3987 .4403	. 4909 . 5355 . 6039 . 6545	. 7081 . 7705 . 8449 . 8925
	27/32	0631 0717 0803 0918	1205 1205 1406 1664	1865 2066 2381 2725	.3127 .3443 .3844 .4246	.4733 .5164 .5824 .6311	. 6828 . 7430 . 8147 . 8606
	Thickness, B. W. G.	224 223 212	20 119 17	16 115 13	112 10 19	87920	4601
	Thic B.						

7	1496 1700 1904 2176	2380 2856 3332 3944	4420 4896 5644 6460	7412 8160 9112 0064	1220 2240 3804 4960	6184 7612 9312 0400
						2111
16	44 47 08 08	06 67 28 21	5882	80 05 27 50	93	5678 7062 8709 9763
115	.14 .16 .18	33223	447.	71 88 97 97	33333444	56 70 87 97
	84100	100400	4019	0000	511	5511
1/8	40 59 78 04	65 69 69	114	994 354 354 354	147 294 102	5173 6511 8105 9125
1		delada	4450			HHHH
16	56 72 72	57 88 20 74	06 15 15 54	17 95 58 21	68 93 10 58	4667 5961 7502 8488
133	151	255	512	913	255	259 759 84
-	₩ W W W W	ma:0=	00 44 CD 00	9089	8000	0811
34	308 488 666 90	08 49 91 45	0.000	48 114 97 80	81 71 00 00 00	4161 5411 6898 7850
-		अंअंअंछ	6447	91.1.3	6000	
9	36	28	529	45882	78748 78748	3655 4860 6295 7213
11/	1201	328	24 14 14 14 15 14 15	62 68 76 84 84	94 03 16 26	36 48 62 72 72
-						
- 00	216 381 547 768	321 707 205	591 978 586 249	922 930 404 177	116 945 216 155	3150 4310 5691 6575
1 5		-6000	ww.4.70	001.00	0010	64700
	00000	0101	10010	2000	0048	4000
1,6	116 132 148 170	185 223 260 308	345 382 440 504	579 537 711 786	876 956 078 168	2644 3759 5088 5938
-						HHHH
10,	328272	85 42 99 58	115 172 133 145	20 20 34 48	115 80 85 53 20	2138 3209 44484 5300
11/	1172	2124	33	.55 61 .68 .75	912	224.23
	G1 00 00 00	07700	0004	-1233	00 1 1 9 0 1 1	10 4 9 L
5/32	00 24 39 59	74 000 444 89	324 359 114 174	369 369 739	324 398 398 398	1885 2934 4182 4981
11			ده ده ما ما	131301		mmmm
9	75 22 69 64	111	119	65 65 34	64 98 52 53	1632 2659 3881 4663
1/2	122	17 20 23 28 28	31 35 40 46	53 58 72 72	80 87 99 07	16 26 38 38 46
-				A1 00 h 10	-	
/32	052 195 339 530	673 008 343 773	108 4443 968 542	212 738 407 076	888 606 706 519	1379 2383 3579 4344
113	iniii.	-000	00004	7000	V-8000	-0.64
	00000	217	11000	90000	30.51	227
3%	105 1116 130 149	165 196 229 271	330	505 561 626 691	771 841 949 028	11127 2108 3277 4025
-						
/32	42 42 779 62	599 119 139 150	970 290 792 840	980 183 183 162	538 224 275 51	0874 1833 2975 3706
11	21.1.24	1222222	22.82.4	61.6	828.	32.56
	800%	0141-00	1846	410010	8000	1848
16	98 111 25 42	56 118 158	23 23 23 23	9899	303 303 305 305 305	0621 1558 2674 3388
1 5	9		4	4. 113 113 0	1400000	0.17.1
					-	
O.			1010 11 10	01-105	m - 1010	4001
B. W	2222	150	7177	1100	W1-073	4.00.04
	B. W. G. 15/6 111/32 13% 113/2 17/6 115/32 11/2 19/6 15% 111/16 13/4 113/16 17/8 115/16 2	15/6 11/22 13% 113/2 17/6 115/32 11/2 1169 1216 1262 1309 1356 1403 1449 11 116 1142 1169 1359 1359 1359 1359 1359 1359 1359 135	15 Åe 11 Åg 13 Åe 11 Åg 15 Åe 11 Åe 13 Åe 17 Åe 17 Åe 11 Åe <th< td=""><td>15/6 11/4z 13/8 17/6 115/2 17/6 115/2 11/5 113/6 13/4 113/6 17/6 17/6 115/6 .0982 1005 1022 1075 1099 1122 1189 1262 1309 1356 1403 1449 .1116 1142 1169 1195 1222 1128 1288 1381 1434 1488 1541 1449 .1250 1279 1309 1364 1588 1428 1488 1561 1607 1607 1666 1526 1785 1847 .1452 1462 1462 1607 1</td><td>15/6 11/4z 13/8 17/6 115/2 11/5 113/6 13/3 113/6 17/6 115/6 15/6 115/6 17/6 17/6 17/6 115/6 17/6 17/6 17/6 17/6 17/6 115/6 17/6 17/6 17/6 115/6 17/6 17/6 17/6 17/6 17/6 17/6 17/6 17/6 17/6 17/6 17/6 17/6 17/6 17/6 17/6 11/6</td><td> 15/6 11/42 13/6 1052 1075 1099 1122 1169 1216 1262 1309 1356 1403 1449 1116 1142 1169 1195 1222 1222 1128 1285 1381 1434 1488 1541 1484 1485 1462 1105 </td></th<>	15/6 11/4z 13/8 17/6 115/2 17/6 115/2 11/5 113/6 13/4 113/6 17/6 17/6 115/6 .0982 1005 1022 1075 1099 1122 1189 1262 1309 1356 1403 1449 .1116 1142 1169 1195 1222 1128 1288 1381 1434 1488 1541 1449 .1250 1279 1309 1364 1588 1428 1488 1561 1607 1607 1666 1526 1785 1847 .1452 1462 1462 1607 1	15/6 11/4z 13/8 17/6 115/2 11/5 113/6 13/3 113/6 17/6 115/6 15/6 115/6 17/6 17/6 17/6 115/6 17/6 17/6 17/6 17/6 17/6 115/6 17/6 17/6 17/6 115/6 17/6 17/6 17/6 17/6 17/6 17/6 17/6 17/6 17/6 17/6 17/6 17/6 17/6 17/6 17/6 11/6	15/6 11/42 13/6 1052 1075 1099 1122 1169 1216 1262 1309 1356 1403 1449 1116 1142 1169 1195 1222 1222 1128 1285 1381 1434 1488 1541 1484 1485 1462 1105

						WII	WIDTH, II	INCHES		-					
Thickness, B. W. G.	21/16	2 1/8	23/16	21/4	25/16	2 3/8	27/16	2 1/2	29/16	2 5/8	211/16	23%	213/16	27/8	215/16
223 223 223	.1543	.1590	.1636 .1859 .2083	.1683 .1913 .2142 .2448	.1730 .1966 .2202 .2516	. 2019 . 2261 . 2584	.1823 .2072 .2321 .2652	.2125 .2380 .2380	.1917 .2178 .2440 .2788	.2231 .2499 .2856	.2010 .2284 .2559 .2934	. 2057 . 2338 . 2618 . 2992	.2391 .2391 .2678 .3060	.2151 .2444 .2737 .3128	.2197 .2497 .2797 .3196
20° 19° 178	.2454 .2945 .3436						.2901 .3481 .4061 .4807	.2975 .3570 .4165 .4930	.3049 .3659 .4269 .5053	.3124 .3749 .4373	.3838 .4477 .5300	.3273 .3927 .4582 .5423	.3347 .4016 .4686 .5546	.3421 .4106 .4790 .5670	.4195 .4894 .5793
115	.5049				.5111 .5661 .6526 .7469	. 5249 . 5814 . 6702 . 7671	.5387 .5967 .6879 .7873	.5525 .6120 .7055	.5663 .6273 .7231 .8277	. 5801 . 6426 . 7408 . 8479	.5939 .6579 .7584 .8681	.6078 .6732 .7761	.6216 .6885 .7937 .9084	.6354 .7038 .8113 .9286	.6492 .7191 .8290 .9488
111 100		_	-		.8570 .9435 1.0536	.8802 .9690 1.0821 1.1951	.9033 .9945 1.1105 1.2266	. 9265 1.0200 1.1390 1.2580	. 9497 1.0455 1.1675 1.2895	9728 1.0710 1.1960 1.3209	.9960 1.0965 1.2244 1.3524	019 122 252 383	1.0423 1.1475 1.2814 1.4153	1.0655 1.1730 1.3099 1.4467	1.0886 1.1985 1.3383 1.4782
, %r.orc	1.1571 1.2623 1.4235 1.5428		1.2272 1.3388 71.5098 51.6363		1.2973 1.4153 1.5961 1.7298	1.3324 1. 1.4535 1. 1.6392 1. 1.7765 1.	1.3674 1. 1.4918 1. 1.6824 1.	4025 5300 7255 8700	1.4376 1.5683 1.7686 1.9168	1.4726 1.6065 1.8118 1.9635	1.4726 1.5077 1.5 1.6065 1.6448 1.6 1.8118 1.8549 1.8 1.9635 2.0103 2.0	5283	1.5778 1.7213 1.9412 2.1038	1.6129 1.7595 1.9843 2.1505	$egin{array}{c} 81.5778 & 1.6129 & 1.6479 \\ 01.7213 & 1.7595 & 1.7978 \\ 11.9412 & 1.9843 & 2.0275 \\ 0 & 2.1038 & 2.1505 & 2.1973 \\ \end{array}$
4001	1.6690 1.8162 1.9916 2.1038	00	3 1.9263 1.9 9 2.1123 2.1 5 2.2313 2.2	1 1.820; 3 1.981; 3 2.172; 3 2.295	.8207 1.8713 1.95 .9814 2.0364 2.05 .1726 2.2330 2.25	1.9218 2.0914 2.2938 3.2.4228	9219 1, 9724 2, 05 0914 2, 1465 2, 20 2933 2, 3537 2, 4, 4225 2, 4863 2, 5	1 2.0230 5 2.2015 7 2.4140 3 2.5500	2. 0230 2. 0736 2. 1242 2. 2015 2. 2565 2. 3116 2. 4140 2. 4744 2. 5347 2. 5500 2. 6138 2. 6775 2	2.1242 2.3116 2.5347 2.677	2.3666 2.3666 2.5951 2.7413	2 2 1747 2 2253 2 5 2 3666 2 4217 2 7 2 5951 2 6554 2 5 2 7413 2 8050 2	2.2759 2.3 72.4767 2.5 12.7158 2.7 0 2.8688 2.9	2.3265 2.5317 3.2.7761 3.2.9325	2.3770 7.2.5868 1.2.8365 5.2.9963
							-								

	3 7/8	.3294 .3689 .4216	.4611 .5534 .6456 .7642	.8564 .9486 .0935 .2516	.4361 .5810 .7655 .9499	.1739 .3715 .6745 .8985	1357 4123 7417 9525
	313/16	.2852 .3241 .3630 .4148	.4537 .5444 .6352 .7518	.8426 .9333 .0759 1 .2314 1	.4129 1 .5555 1 .7370 1 .9185 1	2.1388 2.12.3333 2.6314 2.6314 2.8518 2.8	2. 9839 3. 0345 3. 0851 3.18 3. 2472 3. 3023 3. 3573 3.41 3. 5607 3. 6210 3. 6814 3.73 3. 7613 3. 8250 3. 8888 3.96
	3 3/4	.2805 .3188 .3570	.4463 .5355 .6248 .7395	.8288 .9180 .0583 1 .2113 1	.3898 .5300 .7085 .8870	2.1038 2.2950 2.5883 2.8050	.0345 30233 .82503
	311/16	.2758 .3134 .3511 .4012	.4388 .5266 .6143 .7272	.8149 .9027 .0406 1		2.0687 2.2568 2.5451 2.7583	2.9839 3 3.2472 3 3.5607 3 3.7613 3
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Weights	

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		1 1/2	860 978 095 251	369 642 916 268	542 815 245 715	262 692 239 787	452 038 937 602	306 127 104 730
		11	79-4	UH-12	20000	44.00	0 K K 8	10.
3.0		11 1/4	.842 .956 1.071	1.339 1.607 1.874 2.219	2.486 2.754 3.175 3.634	4.169 4.590 5.126 5.661	6.311 6.885 7.765 8.415	.104 .907 .863
		-	823 935 047 197	309 571 833 169	693 104 553	077 4488 012 535 5	171 732 592 728 8	901 687 922 520 11
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,	ES	-	7-1910	0481	2000	6208	77000	86000
	INCHES	101/4	.871 .871 .976	1.220 1.464 1.708 2.021	2.265 2.509 2.893 3.311	3.799 4.182 4.670 5.158	5.750 6.273 7.075 7.667	8.294 9.026 9.897 0.455
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			2882	40001	12712. 35622. 71622. 10893.	mmu	5255	
		9 2/8	.7200 .8181 .9163 .0472	.1454 .3745 .6035 .8981		.5670 .9270 .3852 .8433	.39965. .89055. .64326. .19957.	17.78867 78.4758 9.2939 9.81759
		91/2	7106 8075 9044 03361	1305 3566 5827 8734	09952 32562 68092 06853	5207 3. 8760 3. 3282 4. 7804 4.	32955 81405 55696 10607	6900 9
		6			01010100	00 00 44 44	101000	7.68 8.36 9.17 9.69
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Weights of Flat Rolled Steel, Pounds Per Lineal Foot Thicknesses from $\frac{1}{32}$ inch to $2\frac{1}{32}$ inches. Widths from $\frac{1}{32}$ inch to $132\frac{3}{3}$ inches

	13/16	0863	2590	4316 5180 6043	9069	.8633 .0359 .2086 .3813	.5539 .7266 .8992 .0719	.2445 .4172 .5898 .7625		.4891 .8344 .1797	5.8703
		.1660	.3320	4150 4980 5811	.6641	.8301 .9961 .1621 .3281	.4941 1 .6602 1 .8262 1 .9922 2	2.1582 2.3242 2.4902 2.6563 2	2.9883 3 3.3203 3 3.6523 3 3.9844 4	4.3164 4 4.6484 4 4.9805 5 5.3125 5	5.6445
	3/4	.1594	.3188	.3984 .4781 .5578	.6375	.7969 .9563 .11561 .27501	.4344 1 .5938 1 .7531 1 .9125 1	2.2313 2.2313 2.3906 2.5500	2.8688 3.1875 3.5063 3.8250	4.1438 4.4625 4.7813 5.1000	5.4188
	23/32	.0764	. 3055	.3818 .4582 .5346	6100	.7637 .9164 .0691	.3746 1 .5273 1 .6801 1 .8328	1.9855 2.1383 2.2910 2.4438	2.7492 3.0547 3.3602 3.6656	3.9711 4.2766 4.5820 4.8875	5.1930
	11/16	.0730	2922	.4383	5844	.7305 .8766 .0227 1.1688	1.3148 1.4609 1.6070 1.7531	1.8992 2.0453 2.1914 2.3375	2.6297 2.9219 3.2141 3.5063	3.7984 1.0906 4.3828 4.6750	4.9672
	21/32	.1395	2092	.4184	.5578	.6973 .8367 .9762 1.1156	1.2551 1.3945 1.5340 1.6734	1.8129 1.9523 2.0918 2.2313	2.5102 2.7891 3.0680 3.3469	3.6258 3.9047 4.1836 4.4625	5.0203
INCHES	2%	.0664	.2656	3320	.5313	.6641 .7969 .9297 1.0625	1.1953 1.3281 1.4609 1.5938	1.7266 1.8594 1.9922 2.1250	2.3906 2.6563 2.9219 3.1875	3.4531 3.7188 3.9844 4.2500	4.5156
	1 9/32	.0631	.1893	3785	5047	.6309 .7570 .8832 1.0094	1.1355 1.2617 1.3879 1.5141	1.6402 1.7664 1.8926 2.0188	2.2711 2.5234 2.7758 3.0281	3.2805 3.5328 3.7852 4.0375	4.2898
WIDTH,	9/6	.0598	2391	.2988	.4781	.5977 .7172 .8367 .9563	1.0758 1.1953 1.3148 1.4344	1.5539 1.6734 1.7930 1.9125	2.1516 2.3906 2.6297 2.8688	3.1078 3.3469 3.5859 3.8250	4.3031
E	17/32	.0564	1693	3387		.5645 .6773 .7902 .9031	1.0160 1.1289 1.2418 1.3547	1.4676 1.5805 1.6934 1.8063	2.0320 2.2578 2.4836 2.7094	2.9352 3.1609 3.3867 3.6125	3.8383
	1/2	.0531	1594			.5313 .6375 .7438 .8500	.9563 1.0625 1.1688 1.2750	1.3813 1.4875 1.5938 1.7000	1.9125 2.1250 2.3375 2.5500	2.7625 2.9750 3.1875 3.4000	3.8250
	15/32	.0498	1494			.4980 .5977 .6973 .7969		1.2949 1.3945 1.4941 1.5938	1.7930 1.9922 2.1914 2.3906	2.5898 2.7891 2.9883 3.1875	3.5859
1	7/16					.4648 .5578 .6508			HHOO	2.4172 2.6031 32.7891	CO CO 1
	13/32		1295			.4316 .5180 .6043	-		0	00000	0100
	3%	.0398	1195	1992	.3188	.3984 .4781 .5578	.7172 .7969 .8766	1.0359 1.1156 1.1953			
	Thickness, Inches	1	2,87	× 12 × 2	/a/4	" " " " " " " " " " " " " " " " " " "	1 /2%/2%	15,756		1 1 1 1 C	27.77

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H	-					0,000	02.47	1.44.00	mmin.	2.9
INCHES	9	23	3387	5645 6773 7902 9031	1289 3547 5805 8063	0320 2578 4836 7094	257	228	8703 3219 7734 2250	
	11/16	11.	.45	567 79 90	355	0320 2578 4836 7094	9352 1609 3867 6125	0641 5156 9672 4188	87 32 77 77	6766
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i i	11/32	1096	3287	5479 6574 7670 8766	0957 3148 5340 7531	9723 1914 4105 6297	8488 0680 2871 5063	9445 3828 8211 2594	6977 1359 5742 0125	4508
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	31/32	1029	3088 4117	5146 6176 7205 8234	0293 2352 4410 6469	8527 0586 2645 4703	6762 8820 0879 2938	7055 1172 5289 9406	3523 7641 1758 5875	9992
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Thickes the state of the state	-	**	-																									
This is a second to the second		nes	10	1,9,0	7/00	10	9	27	# \	12/00	ýĽ	C4	16	00/2	2/2	, ,	2/16	16		100	4%	2/2	2 29				20%	74
£		nch	-	1 20	7-1	10	02/1	-1-1	100	60	100		00 1	11	49	110		15	-		1-	1	-	-	-	2	20	.77
		T.																										

		215/6	.312 .624 .936 .248	1.561 1.873 2.185 2.497	3.121 3.745 4.370 4.994			.236 .484 .733 .981	.478 .478 .727	
6		-	12000					7 11. 9 12. 3 14.	8 119 119 119	2 21
3		27/8	.305 .611 .916		3.055 3.666 4.277 4.888			3.441 1.663	. 884 . 106 . 328 . 550	.994
	Ø.	16	299 598 896 195		988 586 586 781			758 10. 953 12. 148 13. 344 14.	19 15 14 17 19 15 19 15 19 15 19	0 20 6 21
		213/16	2,000		92844	7655	98.36	10.78 11.98 13.14	15.539 16.734 17.930 19.125	0.320
		3/4	10141-0	753 045 338	992 506 091 675	259 844 428 013		519 688 1 856 1 025	194 363 1 531 700	869 20 038 21
	Ų,	23	2,000		9.69.4	2840		10.5 11.6 12.8 14.0	16.3 17.5 18.7	19.8
-	8	16	286 571 857 142	428 713 999 284	855 427 998 569	140 711 282 853	424 995 566 138	280 1 422 1 564 1 706 1	848 1 991 1 133 1 275 1	417 559 2
		211/16	H		0,0004	6667	7.7.80	10.2112.513.7	14.8 15.9 17.1 18.2	19.4
	-11	2/8	279 558 837 116	395 673 952 231	789 347 905 463	020 578 136 694	252 809 367 925	041 156 272 388	503 619 734 850	966
		2	H		0,0004	6000	1.1.000	10.0113.	14. 15. 16. 17.	18.9
	203	29/16	272 545 817 089	361 634 906 178	723 267 812 356	901 445 990 534	079 623 168 713	802 891 980 069	158 247 336 425	514
	HE	2	, =		010004	4000	1.1.000	10.01	14. 15. 16.	18.
	INCHES	2 1/2	.266 .531 .797 .063	328 594 859 125	.656 .188 .719 .250	781 313 844 375	906 438 969 500	563 625 688 750	813 875 938 000	063
	H,	_	6.489	10 4 8 6	00004	4000	00110	010	1.5.	18
-	WIDTH,	27/16	.259 .518 .777 1.036	1.295 1.554 1.813 2.072	.108 .626 .144	.662 .180 .698 .216	.734 .252 .770 .288	323 359 395 431	.467 .503 .539 .575	611
	W				00000 010004	4550	5000	4 9 3 11 3 12.	2 13 114 2 1 15 1 16 1 16	9 18
		2 3/8	.252 .505 .757 1.009	1.262 1.514 1.766 2.019	2.523 3.028 3.533 4.038	4.542 5.047 5.552 6.056	6.561 7.066 7.570 8.075	.084 .094 .103	.122 .131 .141	.159
		9	246 491 737 983	229 474 720 966	457 948 440 931	423 914 405 897	388 880 371 863	10 11 11 11 11 11 12	7 13 9 14 5 15 16	8 17
2		25/16	0.410	1.00	4040	4455	6.38	8.845 9.828 10.811 11.794	12.777 13.759 14.742 15.725	3.708
		1/4	239 478 717 956	195 434 673 913	391 869 347 825	303 781 259 738	216 694 172 650	606 563 519 1 475	388 1 344 1 300 1	256 16.
3		21	441.00	1.19	0101000 000000	447070	6.6	8.6 9.5 10.5 11.4	4.00.00	16.2
-		23/16	232 465 697 930	162 395 627 859	324 789 254 719	184 648 1113 578	043 508 973 438	367 297 227 1 156 1	086 1 016 1 945 1 875 1	805 1
		23	1111111		0,000	4400			13.0	15.8
		1/8	226 452 677 903	129 355 580 806	258 709 161 613	064 516 967 419			741 644 547 450	353 1
		2		HHHH	वां वां वां वा	44410	7.000	0.00	122.64	16.2
	-	21/16	219 438 657 877	096 315 534 753	191 630 068 506	945 383 821 259	698 136 574 013	889 766 642 519	395 272 148 025	905
	1	2	200		0,0,0,0	24410	7.66.07			15.
	Thickness,	Inches	12 2 1 1 N	2224	72% 24	75% 5%	15,88	10/4/0/U	/00/+/00	100/4
	Thic	H				н				21 21

1-1	8/2	412	235	059	882	1117 941 764 588	411 234 058 881	705 528 352 175	822 469 1116 763	409 056 703 350	997
	3	-			300	44.00	r. 00 00 .	112.	14.	28232	29
	3/16	105	215	130	836	051 861 671 481	291 102 912 722	532 342 152 963	583 203 823 444	064 684 305 925	545 166
	313	4.00			0100	44.00	1-0000	12.	14. 16. 17.	21. 22. 24.	27.
	3/4	868	195	992	188	984 781 578 375	172 969 766 563	359 156 953 750	344 938, 531	719 313 906 500	094
	33				0,00	6.4100	7.1.00	12.	14. 15. 17.	2322	27.
	11/16	392	175	959	743	918 702 485 269	052 836 620 403	187 970 754 538	105 672 239 806	373 941 508 075	642
	311				0100	6.450	2.000	10.	15.17	2331.0	26.
	00/	385	155	326	696	852 622 392 163	933 703 473 244	014 784 555 325	866 406 947 488	028 569 109 650	191
	3.5				0.00	6.4100	00.00	10.10	15.113.	223.7.	26.
	/16	379	136	393	650	785 542 299 056	813 570 327 084	841 598 355 113	627 655 169	683 197 711 225	739
	39	6.52			0.00	604400	9.2.00	9.11.11.12.	15.	19. 21. 24.	25.
	1/2	72	116	359	603	719 463 206 950	694 438 181 925	669 413 156 900	388 363 363 850	338 825 313 800	288
ES	31	0.3 [-	1 4		200	60 4 ro ro	01-00	9.0111.	13.	22 22 23 23	25.
WIDTH, INCHES	/16	65	096	326	557	652 383 1113 844	574 305 035 766	496 227 957 688	148 609 070 531	992 453 914 375	836
I.	37/	0314	1.0		10101	w4mm	00000	9.01	13. 14. 16.	20. 20. 23.	24.
TH	3/8	359	076	793	510	586 303 020 738	455 172 889 606	323 041 758 475	909 344 778 213	647 081 516 950	384
VID	33	631	1.0		10101	60 41 70 ro	01.1.0	9.011	14.	20. 21. 22.	24.
	91	52	056	09.	464	520 223 927 631	335 039 743 447	151 855 559 263	670 078 486 894	302 709 1117 525	933
	35/16	001	1.0		10101	w44rv	01.1.00	9.011	12. 14. 15.	18. 19. 21. 22.	23.
	-41	45	036	27	417	453 144 834 525	216 906 597 288	978 669 359 050	431 813 194 575	956 338 719 100	481
	3 1/4	w. a	1.0		10101	24450	0.07.00	8. 9. 11.	113.	17. 20. 22.	23
-	9	39	016	93	371	387 064 741 419	096 773 451 128	805 483 160 838	192 547 902 256	611 966 320 675	030
	33/16	w. 4	-1-		100	W 44 41 70	0.01.0	80.00	13.1.1	17. 20. 21.	23.
	-	32	966	099	324 656	320 984 648 313	977 641 305 969	633 297 961 625	953 281 609 938	266 594 922 250	578
-1	3 1/8	00.0	- oi w		100	8 8 4 rg	7.00	80.60	11. 13. 15.	17. 18. 19. 21.	22.
	116	25	976	27	278	254 905 555 206	857 508 159 809	460 111 762 413	714 016 317 619	920 222 523 523 825	127
	31/4	4	9000		122	2000	7.76.57	8.60	11. 13.0 14.	10.00	22.
		119	956	94	231	188 825 463 100	738 375 013 650	288 925 563 200	475 750 025 300	850 850 125 400	675
	60	000	0.00		100	8847	7.00.7		11. 12. 14.	16. 17. 19. 20.	21.
	å n									-	
1 000	Inches	18/	= 1873	180	227	12/8/2/	12/2/2/2/2/2/2/2/2/2/2/2/2/2/2/2/2/2/2/	15.8 15.8	76/4%	2000	22.2
12.0	Inches										
11 -		1									

	4 1/8		2.590 3.108 3.626 4.144		.323 .359 .395	.467 .503 .539	.647 .719 .791	.934 .006 .078 .150	222
	-	505 009 514 019	523 028 533 98 4	047 5 056 6 066 7 075 8	084 9 094 10 103 11 113 12	22 31 114 115 115 116	39 18 38 20 36 22 24 24	14 26 33 29 31 31 30 33	9 35
	4 3/4	20.00	433.0	8.05	9.08	13.122 14.131 15.141 16.150	18.169 20.188 22.206 24.225	26.244 28.263 30.281 32.300	34.319 36.338
	1/16	498 996 494 992	490 988 486 984	980 977 973 969	965 961 957 953	949 1 945 1 941 1 938 1	930 1 922 2 914 2 906 2	898 2 891 2 883 3 875 3	867 3
	411	400400	40.40	4.00	8.9 9.9 10.9 11.9	12.9 13.9 14.9 15.9	17.9 19.9 21.9 23.9	25.8 27.8 29.8 31.8	33.8
	82	491 983 474 966	457 948 440 931	914 897 880 863	845 828 811 794	777 759 742 725	691 656 622 588	553 519 484 450	416 381
	4		20000	470.07	8.8 9.8 11.7	113.7	17.6 19.6 21.6 23.5	25.5 27.5 29.4 31.4	33.4
	9//6	485 970 454 939	424 909 393 878	848 817 787 756	726 695 665 634	604 573 543 513	452 391 330 269	208 147 086 025	964
	48		0,01000	410.01	8.0.11	13.	17. 19. 23.	25. 29. 31.	32.
	1/2	478 956 434 913	391 869 347 825	781 738 694 650	606 563 519 475	431 388 344 300	213 125 038 950	863 775 688 600	513 425
	4		0,0,0,0	410.01	8.0.01	5.64.5	17. 19. 22.	28. 30.	32.
	7/16	471 943 414 886	357 829 300 772	715 658 601 544	487 430 373 316	259 202 145 088	973 859 745 631	517 403 289 175	061
20	.4		0,0,00	410.01.	8. 10. 11.	13.	16. 18. 20. 22.	24. 28. 30.	33.
INCHES	3/8	465 930 395 859	324 789 254 719	648 578 508 438	367 297 227 156	086 016 945 875	734 594 453 313	172 031 891 750	609
NS	4		0,0100	41001-	10.0.1	25.83.44	16. 20. 22.	24. 26. 29.	31.
	45/16	458 916 375 833	291 749 207 666	582 498 415 331	248 164 080 997	913 830 746 663	495 328 161 994	827 659 492 325	158 991
WIDTH,	4		0,0100	41001-	×600	12.2.4	20. 20. 21.	25.23.	31.
WI	1/4	452 903 355 806	258 709 161 613	516 419 322 225	$\frac{128}{031}$ $\frac{934}{838}$	741 644 547 450	256 063 869 675	481 288 094 900	706
	4		0,0100	41001	×000	12524 1254	16 19 21 21	827233	32
	3/16	445 890 335 780	225 670 114 559	449 339 229 119	009 898 788 678	568 458 348 238	017 797 577 356	136 916 695 475	255 034
	4		0101000	41001-	8860	12224	16. 17. 19.	28.54.53	30.
	1/8	.438 .877 .315	191 630 068 506	383 259 136 013	889 766 642 519	395 272 148 025	778 531 284 038	791 544 297 050	803
	4		0101000	41001-	L-800	12224	15 17 19 21	225.52	31.
	41/16	432 863 295 727	158 590 021 453	316 180 043 906	770 633 496 359	223 086 949 813	539 266 992 719	445 172 898 625	352
	4		0,0100	4000	~∞00 0	12221	12 17 17 17 17 17 17 17 17 17 17 17 17 17	225.22	31.
	4	425 850 275 700	125 550 975 400	250 100 950 800	650 500 350 200	050 900 750 600	300 000 700 400	200 200 200	000
			यायाय	4000	10.00	122.23	120.02	223.2	30.8
	5/16	418 837 255 673	092 510 929 347	184 020 857 694	531 367 204 041	877 714 551 388	061 734 408 081	755 428 102 775	448
	31		यं यं यं यं	410100	10.	11.	15. 16. 18. 20.	21. 23. 25. 26.	30.38
Thickness,	Inches	7872°87%	3224	12/0/2/9	1278/12/4	1 15/8			21%
Thi	-								24.04

-	1	r #00	6 9	0000	279	2112	606	344	5 1	647	20	819	56	94	031	30	769	1
	6 3/4	434		303		3.000 0.041 1.475									43.0		48.7	
1		-010		41010		3 11.		6 15		9 20 20		1 25 6 28						
	×200	704 408 1112		927		.855 .263				709		.341			.234		.681	
	9	- 010		य या थ		×01	-	15		119		28		3 36	3 42.	145	5 50	
	1/2	691 381 072	453	144 834 525	906	669	431	813	575	338	100		388	918	438		963	
	6 1/2	-122		9441		20.0		13.	16.	17.		24	33.	35			46	
ES	38	677 355 032	607	064	773	128 483 838	192	547	556	611	320 675	384	803 513	222	931	350	059 769	
	63	20.30		9444		86.0		13.8		17.			32.	35	37.	43.	46.	
		664 328 992	96	984	41	969 297 625				266			219		188	200	156	
	6 1/4	0.89		000 4 m		000		13.2		18.5			31.8		39.8		45.1	
		651 302 952		555			-	016 1 317 1		920 1			634 238		444		253	1
	6 1/8			2.84		9.1		13.0		16.9			31.28		36.4		44.2	
											125 1400 2		050 3		700 3 250 3		350 4	
	9	.638 .275 .913				. 650											43.3	
				2004		-		3 14		0 16 8 17			3 28	33		00 40		
INCHES	5 7/8	624 248 873		. 745 . 370		.739		484		.230		.472			1.956		2.447	
				30 co 41.		r-000		12	-	116			27 27 29 29		3 34 6 37		8 42	
IDTH,	5 3/4	611 222 833	444	055 666 277		331		219			.550		881				544	
101				w w 4.	6 .	1-00	-	322		15			26		34		43	
M	8	598 195 793	391	988 186 184	781	367	750	953	344	539	930	516	297	078	469	250	641	
	50			01 co 4		1000		112		15.	17.		26.		333		40	
-	. 64	584 169 753	38	922 506 091	375	013	000	688	025	194	531	038	713	388	725	400	738	
-	5 1/2	1.1		9.69		- w		111.6			12		253		32	37.	39.	7
	-	571	84	855 427 998	69	853		422		848			128		981	550	834	211
	51/4 53/8	1.1.5		8.40		6.0		111.2			17.1		222.2		31.6		38.8	
		1		789 347 905		694		041 156 179			734 1		544			200	931	
		1.116		3.34		1000		0.01			16.7		24.5		31.2		37.9	
		1							-		3361		781 2 959 2			8503	028 3	
	1/0			.267 .812		534		802							30.49		37.0	
	r.	1		0000	-	700		5 10			8 16	5 1	5 23				125 3	00 3
1	I.C	531	125	656 188 719		375 438		.625		.813					750			
1	-			0,000	4 1	700	00	100	12	13	15.	19	233	22 6	230	34	36	35
1	SS,																1	
	Thickness Inches	22/22	27%	1200	3/4 7	2/8/2	72	12%	3/2/2/2	13/16	15/8	1 1/8	13.4%	11/2	1	25	278	274
	Thic In																	1
11	-	1																

8 81/8 81/4 83/8 81/2 85/8	850 .863 .877 .890 .903 .916 570 1.727 1.753 1.780 1.805 1.833 500 2.630 2.630 2.749 500 3.559 3.506 3.559 3.613 3.666	449 4. 339 5. 229 6. 119 7.	633 8.766 8.898 9.031 9.164 359 10. 519 10. 678 10. 838 10. 997 086 12. 272 12. 458 12. 644 12. 830 813 74, 025 14. 238 14, 450 14. 663	15.778 16.017 16.256 16.495 17.531 17.797 18.063 18.328 19.284 19.577 19.869 20.161 21.038 21.356 21.675 21.994	791 23 136 23 481 23 827 544 24 916 25 288 25 659 297 26 695 27 094 27 492 050 28, 475 28,900 29 325	556 32 034 32 513 32 991 063 35 594 36 125 36 656 569 39 153 39 738 40 322 075 42 713 43 350 43 988	1 46 .272 46 .963 47 .653 8 49 .831 50 .575 51 .319 4 53 .391 54 .188 54 .984 0 56 .950 57 .800 58 .650	60.509 61.413 62.316 64.069 65.025,65.981
81/8 81/4 83/8 81/2	.863 .877 .890 .903 2.590 2.630 2.670 2.709 3.453 3.506 3.559 3.613	316 4.383 4.449 4.516 180 5.259 5.339 5.419 043 6.136 6.229 6.322 906 7.013 7.119 7.225	8.766 8.898 9.031 10.519 10.678 10.838 12.272 12.458 12.644 14.025 14.238 14.450	778 16.017 16.256 531 17.797 18.063 284 19.577 19.869 038 21.356 21.675	23.136 23.481 24.916 25.288 26.695 27.094 28.475 28.900	32.034 32.513 35.594 36.125 39.153 39.738 42.713 43.350	46.272 46.963 49.831 50.575 53.391 54.188 56.950 57.800	60.509 61.413 64.069 65.025
8 1/8 8 1/4 8 3/8 8	.863 .877 .890 1.727 1.753 1.780 1.2.590 2.630 2.670 2.870 3.453 3.506 3.559 3.	316 4.383 4.449 4. 180 5.259 5.339 5. 043 6.136 6.229 6. 906 7.013 7.119 7.	8.766 8.898 9. 10.51910.67810. 12.27212.45812. 14.02514.23814.	778 16.017 16. 531 17.797 18. 284 19.577 19. 038 21.356 21.	23.136 23. 24.916 25. 26.695 27. 28.475 28.	32.034 32. 35.594 36. 39.153 39. 42.713 43.	46.272 46. 49.831 50. 53.391 54. 56.950 57.	60.509 61.
81/8 81/4 83/8	2.590 2.630 2.670 3.559	316 4.383 4.449 180 5.259 5.339 043 6.136 6.229 906 7.013 7.119	8.766 8.898 10.519 10.678 12.272 12.458 14.025 14.238	778 16.017 531 17.797 284 19.577 038 21.356	23.136 24.916 26.695 28.475	32.034 35.594 39.153 42.713	46.272 49.831 53.391 56.950	60.509
8 1/8 8 1/4 8	.863 .877 1.727 1.753 1.2.590 2.630 2.3.453 3.506 3.	316 4.383 4. 180 5.259 5. 043 6.136 6. 906 7.013 7.	8.766 8. 10.519 10. 12.272 12. 14.025 14.	778 16. 531 17. 284 19. 038 21.	24. 26. 28.	335.	46 55 56 56	60.
8 1/8 8 1/4 8	.863 .877 1.727 1.753 1.2.590 2.630 2.3.453 3.506 3.	316 4.383 4. 180 5.259 5. 043 6.136 6. 906 7.013 7.	8.766 8. 10.519 10. 12.272 12. 14.025 14.	778 16. 531 17. 284 19. 038 21.	24. 26. 28.	335.	46 55 56 56	60.
8 1/8 8	.863 2.590 3.453 3.	316 4. 180 5. 043 6. 906 7.	14.12	778 531 284 038				
8 1/8 8	.863 2.590 3.453 3.	316 4. 180 5. 043 6. 906 7.	14.12				581 088 594 100	606
00					28.	31.5 35.0 38.5 42.0	45.5 49.0 52.5 56.1	59.6
00				539 1 266 1 992 1 719 2	445 2 1 1 7 2 2 8 9 8 2 6 2 5 2 2	078 531 984 438	891 4 344 4 797 5 250 5	703 5 156 6
00			10.3 13.8 13.8	15.5 17.2 18.9 20.7				
00	802	0000		-	0000	0 34	0 44 0 51 0 55	0 58
_		.250 .100 .950 .800	2000	2000	2000	0004.8	90004.	.800
	2087	4000	8 11 11 13 13	112	22232	9334	0 2 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	1 57
8/2	837 673 510 347	184 020 857 694	367 041 714 388	061 734 408 081	755 428 102 775	$\frac{122}{469}$ $\frac{816}{163}$	509 856 203 550	897
2	-0100	4000	80111 131108	2086	25331	0000 0000 4000 4000	440°0°0°0°0°0°0°0°0°0°0°0°0°0°0°0°0°0°0	56
3/4	823 647 470 294	117 941 764 588	234 881 528 175	822 469 116 763	409 056 703 350	644 938 231 525	819 1113 406 700	994
7		4400	8.6.11.5	14. 16. 19.	24. 24. 26.	39. 39.	42. 46. 52.	55.
2/8	810 620 430 241	051 861 671 481	102 722 342 963	583 203 823 444	064 684 305 925	166 406 647 888	128 369 609 850	091
7	0, 00	4400	12.1.9.8	14. 16. 19.	22.52.	382.33	45. 45. 51.	555
1/2	797 594 391 188	984 781 578 375	969 563 156 750	344 938 531 125	719 313 906 500	688 875 063 250	438 625 813 000	188
7	⊢0.00	6.4.0.0	7. 9. 11. 12.	14. 15. 19.	23.5.	3823	44. 47. 51.	54.
8	784 567 351 134	918 702 185 269	336 403 970	105 372 339 306	373 341 508 075	209 344 178 178 313	747 381 381 016 150	284
73	-0100	6.440						53.5
4	241	63222						381
71	128	65.4.0						52.3
	14 17 17 18 18	569925						478 5 506 5
7 1/8								
-								5 51
-								3.550
-								2 50
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	8	-	35	003	388			15 50 85 10 20 11	55 12 90 18 25 14 60 15	-
		22	9.	116.91	228.23			84.1 93.5 102.8		
			24	1872.	111	60 22 48 46 46 46 46			121 130 140 149	
		21 3/4	9.5	113.8	23.1 27.7 32.3 36.9	41.6 50.8 55.4		3.19 2.44 1.68 0.93	3.66	.14
		-	1 4					83 101 110	120 129 138 147	157
	-	21 1/2	9.1	11.42 13.71 15.99 18.28	2.84 7.41 1.98 6.55	1.12 5.69 5.69 1.83	3.53 3.53 3.10	.24	93	.34
	-	2	1 ~		31 22 36 36	45 50 545	59 68 73	82 91 100 109	118 127 137 146	155.
	-	21 1/4	9.03	3.55		.64 .16 .67 .19	. 22 . 73 . 25	384	44 44 50	53
		2		113	22 31 36	45 49 45	58 63 72	81 90 99 108	117 126 135 144	153
		21	.93	.16 .39 .62 .85	31 24 70	.16 63 09 .55	01 48 94 40	33 18 10	8880	73
	ES	2	00	113	22 26 31 35	44 49 53	58 62 66 71	80 880 107	116. 124. 133.	51.
	INCHES	34	.82	02 23 43 64 64	05 46 87 28	68 09 50 91	32 14 55	37 19 01 83	64 46 10 10	92 1
	3	20	00	113	22 26 30 35	39 44 52 52	57. 61. 66. 70.	79. 88. 97. 05.	114. 123. 132. 141.	149.
Lin	i,	1/2	71	89 07 25 43	78 149 85	21 56 92 28	63 99 34 70	113 13 55 1	26 98 1 69 1 40	11 11 1883 1
TITOTIM		20	00	13.	21. 26. 30. 34.	39. 47. 52.	56. 65. 69.	78 87 95 04	1113.5 121.6 130.6 139.4	148.1
1	-	1/4	61	76 91 06 21	4 4 4 3 5 5 5 7 7 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	73 03 64 64	94 224 85	46 06 67 28	88 49 10 70 11	31 14
		201	00	10. 15. 17.	21. 25. 30.	38. 443. 51.	55. 60. 64. 68.	77.4 86.0 94.6 103.2	111.8 120.4 129.0 137.7	
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	+	20	∞	12.	225.1.3	38.2 442.2 51.0	55.2 59.5 63.7 68.0	76.5 85.0 93.5 02.0		3.00
	-	- 1	39	449 59 69 79	00 m 00	77 97 97 17 36		7	1119 1127 1136	144
		193/4	00	10.4 12.5 14.6 16.7	20.9 25.1 29.3 33.5	37.7 41.9 46.1 50.3	54.56 58.76 62.95 67.15	2.33 2.33 0.73	7.51 5.91 1.30	69.
-	-	-	6					75 83 100 100	109 117 125 134	142
		191/2	8.29	10.36 12.43 14.50 16.58	9.72 4.86 9.01 3.15	7.29 1.44 9.73	8.87 8.01 1.16 8.30		.31	. 18
	-	1			200 230 230 230 230 230 230 230 230 230	45.04	53 62 62 66	74 82 91 99	107 116 124 132	140
	1	4	-	3273	.63	910000000000000000000000000000000000000	.18 .36 .45		36 72 90	08
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	SSS,	,				-				
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-	64	05 1	81 58 34 10	63 20 20	308 30	88 88 40	45 50 55 60	65 70 75 80 80	85
	26	11.0	13.8 16.5 19.3 22.1	27.6 33.1 38.6 44.2	49. 555. 660.	71. 777. 882. 888.	99. 10. 21. 32.	54.3	198.
			68 115 115 115 115	3083	25 772 119 66	113 61 08 55	49 444 38 33 1	27 21 10 10 10	99
	25 3/4	10.94	13.6 16.4 19.1 21.8	27.3 38.8 43.7	54.7 54.7 60.1 65.6	71.1 76.6 82.0 87.3	98.4	142. 153. 164. 175.	96.
	21			00 51 35 4 35 4	77 19 61 61 63 63	288 288 70 86	54 38 21 11 05	89 1 73 1 56 1 40 1	24 1 08 1
	21/2	9.84	13.55 16.26 18.97 21.68	27.0 32.5 37.9 43.3	48.7 54.1 59.6 65.0	70.4 75.8 81.2 86.7	97.5 108.3 119.2 130.0	51.73.40.8	84.
	25	10			4-1-1-	75 112 75 75 75 85 85 85	58 31 04 11 78	51 12 24 1 97 1 70 1	161
	1/4	.73	3.78 3.78 1.46	3.83 2.19 7.56 2.93	48.29 53.66 59.02 64.39	39.7 75.1 80.4 85.8	96.5 07.3 18.0 28.7	39.5 50.2 60.9 71.7	93.1
	25	10	13 16 18 18 21	28 32 42 42				13 13 75 15 38 16 00 17	63 18 25 18
	25	.63	28 94 59 25	.56 .88 .19	.81 3.13 3.44 3.75	4.38 9.69 5.00	5.63 6.25 7.50		
	2	10	13 15 18 21	26 31 42	533	69 774 79 85	95 106 116 127	1148 1148 1159 1170	180
	3/4	52	15 78 41 04	30 56 82 08	33	.63 .89 .15		3.74 7.26 7.78 8.30	3.82
INCHES	24	10.	13 13 21 21 21 21 21 21 21 21 21 21 21 21 21	26 31 36 42	52 57 63	68 73 84 84	94 105 115 126	136 147 157 168	178.
ICE	1/2	41	82228	03 24 44 65	86 06 48 48	800000000000000000000000000000000000000	. 13 13 54 95	.36 .19 .60	.43
	241	10.	113.	26. 31. 41.	525 57 57 62	83827	93 104 114 124	135. 145. 156.	177
TH		31	888 446 04 61	77 92 07 23	86338	99 14 30 45	76 06 37 68	98 29 59 90	.21
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×	-	20	75 30 85 40	80000	20000	30 50 60	80000	9808	.60
	24	10.2	20.22	25. 30. 40.	45. 51. 56.	66. 71. 76. 81.	91 102 112 122	132 142 153 163	173
	-	60	62 66 19	80000	522 472	61 66 70 75	84 94 03 13	22 31 41 50	. 59
111	23 3/4	10.0	12.6			65.	211.09	131 151 161	171
	-	10	88888		4488	901	888	84 83 80 80	78
	23 1/2	9.9	4.21					29. 39. 159.	179.
1	2	1 00							98
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	2	1							The second secon
	23	9.78	1.66						
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	22		127	224 23	44.00	622 672	87 96 106	1 2224.	164
-	, 888°	1							1
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	rhic In								
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	30	12	15 19 25 25 25	38.44.51.	57. 63. 70.	889.		165. 178. 191. 204.	216.
	3/4	64	80 97 13 29	61 93 58	85229	118 83 151	73	37 1 001 1 30 2	94
	29	12	22225	31.	56. 69. 75.	888. 01.	113. 126. 139. 151.	164. 177. 189. 202.	214.
	1/2	54	67 81 94 08	34 61 15	45 69 23 23	49 76 03 30	84 38 1 91 1 45	99 1 53 1 60 2	142
	29	12.	221.28	31. 37. 50.	56. 62. 75.	81. 94. 00.	1125. 125. 137.	175. 175. 200:	213.
	1/4	43	55 75 86	08 29 51 73	116	80 02 23 45	888 31 174 18	61 04 11 90 2	333
=	29	12.	15. 24.	31. 443. 49.	55. 62. 74.	80. 93. 99.	1111. 124. 136. 149.	161. 174. 186.	211.
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	29	12.	15. 24.	30. 43. 49.	61. 67.	86. 986. 98.	123. 135. 147.	160. 172. 184. 197.	209
	34	22	4 4 4 4 4	555 777 88	98 00 31	53 53 75	97 19 119 119 111 63 11	84 06 10 50 11	722
	28	12.	15. 18. 24.	36. 42. 48.	54 61. 73.	79. 91. 97.	00 22 34 46	158.8 171.0 183.2 195.8	207.7
70	1/2	=	14 17 20 23	23 40 40 40 40 40	55 62 68 68	73	01 13 13 13 13 35 1	46 58 69 11 80	91 2
INCHES	281	12.	15. 21. 24.	36. 42. 48.	54. 60. 66. 72.	78. 90. 96.	109. 121. 133. 145.	69.1 81.6 93.8	205.9
NC	1/4	01	0000	00222	03	005	06 1 06 1 07 1 08 1	08 1 09 1 10 1	111 2
I, I	281	12.	15. 21. 24.	30 36 48 48.	54. 60. 72.	78. 84. 90.	108.0 120.0 132.0 144.0	156.0 168.0 180.0	204.1
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WI	28	11.	14. 17. 20. 23.	29. 35. 41.	53. 59. 65.	77. 83. 95.	107. 119. 130. 142.	154. 166. 178. 190.	202
7	3/4	62	74 69 64 59	25 35 48 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	97 97 76	99 35 35 35	14 94 73 13 53	32 11 11 91 70	49 2
	27	=	14 17 20 23 23	29 35 41 47	53.	76. 82. 94.	106. 117. 129. 141.	153. 165. 176. 188.	200.
-	1/2	69	61 53 38 38	22 06 91 75	59 44 28 13	97 81 66 50	19 88 56 12 25	94 1 63 1 31 1 00 1	69 2
	27	11	14 17 20 23 23	29 35. 40.	52. 58. 64. 70.	75. 87. 93.	105. 116. 128. 140.	151. 163. 175. 187.	198.
	7	58	37 27 16	95 74 33	12 91 70 49	28 07 65 65	23 81 39 1 98 1	56 14 14 72 30	88 1
	271/4	=======================================	14 17 20 23 23	28 34 40 46 46	52. 57. 69.	75. 81. 92.	104. 115. 127. 138.	150. 162. 173. 185.	196.
	-	48	34 08 95	69 43 16 90	85 85 85	80 80	23 23 70 10 11	18 65 113 103 103 103	08 1 55 2
	27	11	114 22 22 22	28 34 45 45 45	51. 57. 63. 68.	74. 80. 91.	103. 1114. 126. 137.	49 60 72 83	195.
	1/2	37	21 05 90 74	42 111 79 48	16 84 53 21	90 524 95	32 69 06 143 11	79 1 16 1 53 1 90 1	27 1 64 2
	26	Ξ	14. 17. 19.	28. 34. 39. 45.	51. 56. 62. 68.	73 85 90	102. 113. 125.	147. 159. 170. 181.	193.
	1/2	.26	08 89 71 53	16 79 42 05	68 31 94 58	21 84 47 10	36 63 15 15 15	41 68 94 1 20 1	46 1 73 2
	26	11	14 119 122 22	4 333	50. 56. 61. 67.	73. 78. 84. 90.	101. 1123. 135.	146. 157. 168. 180.	191.
Thickness,	Inches	/00	%%%%X	777%7	12% Land	12/2/2	7,574%74	10/10/10/10 10/10/10/10	7%74
Thic	Ir						HHHH	0	222

-	-1	34	93. 52 10 69	86 03 38 38	255 89 06	23 58 75	09 44 78 13	47 81 16 50	84
	33 3/4		17.9 21.5 25.1 28.6	35.8 43.0 50.2 57.3	71.77.78.886.0	93. 100. 107.	129. 143. 157. 172.	186. 200. 215. 229.	243
-			80 36 92 48 48 26 26 26 26 26 26 26 26 26 26 26 26 26	559 71 95 95	07 119 31 43	54 666 178 190 190	14 38 61 61 85	00 33 33 56 56 80	04
	33 1/2	14.24	217.8 24.9 28.4 28.4	35.5 42.7 49.8 56.9	64.0 771.1 778.3 85.4	92.8 99.6 106.7	142. 142. 156.	185. 199. 213. 227.	242.
			20 20 20 20 20 20 20 20 20 20 20 20 20 2	33 39 44 53 53	59 66 72 79 8	85 92 98 10 05	18 31 44 14 58	71 1 84 1 97 2 10 2	23 2 36 2
	33 1/4	1.13	21.20 24.77 28.29	35.3 42.3 56.5	63.5 70.6 77.7 84.7	91.8 98.9 105.9 113.0	127.1 141.8 155.4 169.8	183. 197. 211. 226.	240.
	3	14				16 18 19 10 20 119	23 25 25 11 28 11 30	33 35 38 40 20 20	45.2
1	33	1.03	7.53 1.04 1.54 3.05	2.08 2.08 9.09 6.10	63.11 70.13 77.14 84.15			182.3 196.3 210.3 224.4	238.
	63	14	24 28 28	35 44 56 56		98 98 9105 5112	7 126 9 140 1 154 3 168	94 18 86 19 78 21 70 22	62 23
	3/4	.92	288 88 88 48	.68	2.63 9.59 3.55 3.51	7.43 7.43 4.39	5.27 9.19 3.11 7.03		236.6
	32	13	17 20 24 27	34. 55.	62 69 76 83	90. 104. 1111	1125 3 139 1 153 5 167	\$ 194 \$ 208 \$ 222	3 25
	1/2	81	27 72 17 17 63	.53 .34 .25	.16 .06 .97 .88	. 78 . 69 8. 59 0. 50	8.13 1.94 1.94	3.56 3.38 7.19 1.00	8.63
	321	13.	17 20 24 27	44 148 55	62. 75. 82.	89 96 103 110	124 138 151 165	179 193 207 221	234
20	1/4	11	13 56 99 41	27 12 97 83	68 53 24 24 24	.09 .80 .65	.36 .06 .77 .48		3.01
INCHES	321	13.	23.		61 68 75 82 82	89 95 102 109	123 137 150 164	178. 191. 205. 219.	233
NC		09	00 80 20 20	00000	00000	40 20 80 80	9888	8489	.80
	32	13.6	20.20.223.23.27		61. 68. 74. 81.	88. 95. 102. 108.	122 136 149 163	176 190 204 217	231
WIDTH,	-	49	87 24 61 99		72 22 22 96	71 20 20 95	94 94 93	42 91 41 90	39
WII	31 3/4	13.4	16.8 20.2 23.6 23.6		60. 67. 74. 80.	87. 94. 101.	121. 134. 148. 161.	175 188 202 215	242
		39	73		24 94 93 33	02 71 10 10	88 88 26 10 65	04 43 20	59
	31 1/2	13.3	16.7 20.0 23.4		66.2	87. 93. 100.	120. 133. 147. 160.	174. 187. 200. 214.	227.
	8	1	-			33 97 61 1 25	53 1 81 1 09 1 38 1		782
	1/4	13.28	16.60 19.92 23.24			86.3 92.9 99.6	119.8 132.8 146.0		
	31						.58 .75 .93 .10	28 45 11 63 11 80 20	
	31	118	3.06				118.5 131.7 144.9		223.9
	8	13	19 19 23 33 35						
1	3/4	07							
	30	13						169	
	1/2	96					66.00	8.51 1.48 4.44 4.44	
	30 1/2	12	16.	322 32	588	_		168 181 194 194	220
	-	1 8	288	71 14 57					
	30 1/4	19			57 70 77	83	115	167 179 192	218 231
-	-	1							
1	Thickness Inches	1	w 18 2 8	4 1884	22/27 2	4 22/22	1 1111	1 1111 12 2007/20	72%
	hicknes Inches		12,86,10,		-				
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	37			4000		500000000000000000000000000000000000000	48882	113	468
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	37 1/4	.83	75 75 76		24 16 07 99			881	
	37	15	27 23 37 37 37 37 37 37 37 37 37 37 37 37 37	555	720	102. 110. 118.		205. 221. 237. 253.	
-	2	.73	.66 .59 .52		489 35	21 08 94 80	53 25 10 70	15 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	33 2
	37	15	223	39	70 770 86.	102. 110. 117.	141. 157. 172. 188.	204. 220. 235. 251.	267.
	34	. 62	22.833	05 86 67 88	28 000 71	333 14 95	57 19 81 81 43	90 28 28 30 30 30	142
	36	15	27 23 31 31	39 46 54 62	70 78 93 93	101 109 117 124	140. 156. 171. 187.	203. 218. 234. 249.	265.
	1/2	.51	39 27 15 03	78 29 05	81 56 32 08	83 59 34 10	61 13 15 15	66 118 69 20 20 20	71 2 23 2
	36	15	19 27 31	38 46 54 62	69. 77. 85. 93.	100. 108. 116. 124.	39 55 70 86	201. 217. 232. 248.	263.
	1/4	41	26 11 96 81	525 922 63	33 03 44	14 884 11 25 11 25 11	66 06 1 47 1 88	288 69 50 50 50 50	91 2
	36	15.	19. 28. 30.	38. 46. 53.	69 77 84 92	100. 107. 115.	138. 154. 69. 84.	200.2 215.6 231.0 246.8	261.9
100		30	113 95 78 60	20 20 20 20	85 50 115 80	45 10 10 10 10 10 10 10 10 10 10 10 10 10	70 30 10 60 11	90 20 20 80 80 80 80 80	10 20
INCHES	36	15.	19. 22. 26. 30.	38. 45. 53.	68. 76. 84. 91.	99. 107. 114. 122.	137.7 153.0 168.3 183.0	198.9 214.2 229.5 244.8	260.1
NC	34	19	99 59 39	200	937	76 36 95 1	74 94 13 33 1	52 1 71 2 91 2 10 2	29 20
H, I	35	15.	18. 22. 26. 30.	45. 53. 60.	68. 75. 91.	98. 106. 1113. 121.	136.7 151.9 167.1 182.3	197.5 212.7 227.9 243.1	258.2
WIDTH,	1/2	60	86 63 40 18	72 26 81 35	538	07 61 16 16 70	79 88 19 96 10 05	141 232 312 402	49 2 58 2
WI	35	15	18 22 30 30	37. 52. 60.	67. 75. 82. 90.	98. 105. 1113.	135. 150. 165. 181.	196. 211. 226. 241.	256.4
	1/4	98	73 47 22 96	93	42 91 40 89	88278	83 81 79 178 178	76 74 72 22 70 2	68 2
	35	14	22 26 29 29	37 52 59	67. 74. 82. 89.	97. 104. 112. 119.	134. 149. 164. 179.	194. 209. 224. 239.	254.
	10	80	31 03 75	19 63 06 50	2010	69 113 56 00	88 75 63 10 50	38 25 13 25 00 20 20 20 20 20 20 20 20 20 20 20 20	75 2
	35	14	252 26 29 29	37. 44. 52. 59.	66. 74. 81. 89.	96. 104. 111. 1119.	133. 148. 163.	193. 208. 223. 238.	252.8
	3/4	22	285 54 54	92 31 69 08	84 84 61 61	00 777 151	92 69 1 46 1 23 1	99 1 76 2 30 2 30 2	07 28
	34	14.	18. 22. 25. 29.	36. 44. 51. 59.	66. 73. 88.	96. 103. 110.	132.9 147.0 162.0	191.9 206.7 221.8 236.3	251.0 265.8
	1/2	99	33	99	98 64 98	31 97 30 11	96 1 63 1 29 1 95 1	61 28 94 94 60 2	26 2 93 2
	34	14.	25. 25. 29.	36. 43. 58.	65. 73. 80. 87.	95. 102. 109.		205.2 205.2 219.2 234.6	249.2
	7	26	20 83 47 111	39 95 23	50 78 06 34	62 89 17 17 17 15		23 34 30 22 22 22 22	46 2 01 2
-	34	14.	25. 29.	36. 50. 58.	65. 72. 80. 87.	94. 101. 109. 116.		203.7 203.7 218.3 232.9	247.4
		45	90 90 80 80 80 80 80 80 80 80 80 80 80 80 80	8008	03 448 70	938 1 60 1		20 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	65 24
			28.55.	36. 43. 50. 57.	65. 79. 86.	93. 101. 108. 115.		202.3 202.3 216.7 231.2	245.6
,88	m							-000	0101
Thickness	Inches	~°°° ;	2, 2, 2, 7, 4 2, 2, 3, 4	12/2/2/2	12/2/2/4	13,77,6	7%74%74	HHH0 %%4%	22

JONES & LAUGHLIN STEEL COMPANY

66 42 19

87 96 05

52 61 70 70

30 68 06 06

350 350

411/4

Thickness

Inches

18/6/8/4

25 48 25

22 31 40

313.

22%

61 66 70

2224 240 256

100 Jan 100

7674% X4

97 97 50

245 262 280

38 31 38 38

57. 75. 192.

8 3 3 5 3 98 69 40 25 10 28 39 70 13 55 14 49 85 226. 243. 261. 278. 74 91 90 90 90 20 30 39 52 60 69 30 34 10 10 19 51 83 96 62 82 28 59 25 91 98 31 64 3/4 242 259 259 21 29 38 51 60 95 95 03 -Continued 25 30 34 34 98 19 40 06 67 28 49 09 70 13 34 55 122 433 854 855 1/2 240 258 275 172 189 206 20 29 37 255 330 334 60 68 86 94 03 49 70 06 17 28 08 08 64 74 30 85 322 432 433 66 94 21 401/4 239 256 273 19 28 36 205 205 94 02 Pounds Per Lineal Foot 220 220 34 238 255 272 119 27 36 59 68 51 41 30 94 6 83 73 58 58 58 47 92 36 26 720 720 720 34 56 79 18 26 35 50 59 67 84 92 01 INCHES 03 81 60 88 66 45 36 15 733 733 51 91 30 N 235 251 268 17 25 34 33 92 92 92 50 50 67 54 22 90 WIDTH, 81 18 41 75 09 04 38 73 02 19 36 216. 233. 250. 266. 83 91 00 50 58 66 05 05 20 88 16 45 03 31 60 86 01 15 01 30 Steel, 232 248 265 16 24 32 58 58 66 82 91 99 224 229 333 56 03 50 16 63 41 64 88 34 53 81 Weights of Flat Rolled 230 247 263 15 23 31 64 81 97 57 65 82 90 98 284 28 08 44 80 80 63 99 35 36 72 72 90 99 18 91 09 27 45 N 229 245 261 63 79 96 14 22 30 89 98 98 59 10 28 54 54 54 77 90 03 227 243 260 62 78 78 95 113 21 30 55 65 89 97 10 25 40 98 05 05 20 20 50 65 80 75 83 90 53 50 60 28 30 30 209. 226. 242. 258. 61 61 77 77 93 113 121 29 880 96 56 56 64 444 500 500 - C 10 ∞ 3/4 112 20 20 28 60 76 92 80 88 96 48 56 64

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Thickness, Inches	11/00/	% % 2/2/4	12/8/2/	18/00/20/4	12/8/20		~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	200

58 1/2 58 3/4 59 1/4 59 1/2 59 3/4 60	24.97 25.08 25.18 25.29 25.39 25.50	1 31.34 31.48 31.61 31.74 31.88 5 37.61 38.93 38.25 6 43.88 44.07 44.25 44.44 44.63 6 50.15 50.36 50.38 50.79 51.00	2.69 62.95 63.22 63.48 63.75 5.23 75.54 75.86 76.18 76.50 7.76 88.13 88.51 88.88 89 25 0.30 100.73 101.15 101.58 102.00	113. 32 113. 79 114. 27 114. 75 8125. 91 126. 44 126. 97 127. 50 1138. 50 139. 08 139. 67 140. 25 5 151. 09 151. 73 152. 36 153. 00	3.68 164.37 165.06 165.75 6.27 177.01 177.76 178.50 8.86 189.66 190.45 191.25 1.45 202.30 203.15 204.00	. 63 227 .59 228 .54 229 .50 .81 252 .88 253 .94 255 .00 .99 278 .16 279 .33 280 .50 .18 303 .45 304 .73 306 .00	328.74 330.12 331. 354.03 355.51 357. 379.31 380.91 382. 404.60 406.30 408.	429.89 431.69 433.
1/2 583/4 59 591/4 591/2 593/4	.97 25.08 25.18 25.29 25.39	31.34 31.48 31.61 31.74 37.61 37.77 37.93 38.09 43.88 44.07 44.25 44.44 50.15 50.36 50.58 50.79	69 62.95 63.22 63.48 23 75.54 75.86 76.18 76 88.13 88.51 88.88 30 100.73 101.15 101.58 1	113. 32 113. 79 114. 27 125. 91 126. 44 126. 97 138. 50 139. 08 139. 67 151. 09 151. 73 152. 36	68 164.37 165.06 27 177.01 177.76 86 189.66 190.45 45 202.30 203.15	63 227 59 228 54 81 252 88 253 94 99 278 16 279 33 18 303 45 304 73	328.74 330.12 354.03 355.51 379.31 380.91 404.60 406.30	429.89 431.69
1/2 583/4 59 591/4 591/2 59	.97 25.08 25.18 25.29 25.	31.34 31.48 31.61 31. 37.61 37.77 37.93 38. 43.88 44.07 44.25 44. 50.15 50.36 50.58 50.	69 62.95 63.22 63. 23 75.54 75.86 76. 76 88.13 88.51 88. 30 100.73 101.15 101.	113. 32 113. 79 114. 27 125. 91 126. 44 126. 97 138. 50 139. 08 139. 67 151. 09 151. 73 152. 36	68 164.37 165.06 27 177.01 177.76 86 189.66 190.45 45 202.30 203.15	63 227 59 228 54 81 252 88 253 94 99 278 16 279 33 18 303 45 304 73	328.74 330.12 354.03 355.51 379.31 380.91 404.60 406.30	429.89 431.69
1/2 583/4 59 591/4 591/2	.97 25.08 25.18 25.29	31.34 31.48 31.61 37.61 37.77 37.93 43.88 44.07 44.25 50.15 50.36 50.58	69 62.95 63.22 23 75.54 75.86 76 88.13 88.51 30 100.73 101.15	113.32 113.79 125.91 126.44 138.50 139.08 151.09 151.73	.68 164.37 27 177.01 86 189.66 45 202.30	63 227.59 81 252.88 99 278.16 18 303.45	328.74 330. 354.03 355. 379.31 380. 404.60 406.	429.89 431.
1/2 58 3/4 59 59 1/4 59	.97 25.08 25.18 25.	37.61 37.77 37. 43.88 44.07 44. 50.15 50.36 50.	23 75.54 75. 76 88.13 88. 30 100.73 101.	113.32 113.79 125.91 126.44 138.50 139.08 151.09 151.73	.68 164.37 27 177.01 86 189.66 45 202.30	63 227.59 81 252.88 99 278.16 18 303.45	328.74 354.03 379.31 404.60	429.89
1/2 58 3/4 59 59 1/4 59	.97 25.08 25.18	37.61 37.77 37. 43.88 44.07 44. 50.15 50.36 50.	23 75.54 75. 76 88.13 88. 30 100.73 101.	113.32 113. 125.91 126. 138.50 139. 151.09 151.	68 164. 27 177. 86 189. 45 202.	63 227. 81 252. 99 278. 18 303.	328. 354. 379.	429.
1/2 58 3/4 59 59	.97 25.08 25.1	31.34 31. 37.61 37. 43.88 44. 50.15 50.	69 62.95 23 75.54 76 88.13 30 100.73	113.32 125.91 138.50 151.09	68 27 86 45	63 99 18 18	36 54 36 90 90 90	8
1/2 58 3/4 59 59	.97 25.08 25.	31.34 31. 37.61 37. 43.88 44. 50.15 50.	69 62. 23 75. 76 88. 30 100.	113. 125. 138. 151.			9750	
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72	44		.91 .39 .88	.84 .83 .83 .81	30 727 75	.72 .69 .66 .63		
8 1/2		31 43 49	62 74 87 99	1124 124 137 149	162 174 187 199	224 249 274 299	16 313 .54 314 .93 316 .31 317 .69 319 .07 320 .45 321 .83 323 .21 324 .59 325 .98 327 .36 338 .74 330 .12 18.337 .63 339 .15 346 .39 342 .18 342 .18 343 .11 345 .10 346 .59 348 .08 349 .56 351 .05 352 .54 354 .08 355 .51 .20 385 .90 387 .60 389 .30 390 .00 392 .70 394 .40 386 .10 397 .80 389 .50 401 .20 402 .90 404 .60 406 .30 .21 410 .02 411 .83 413 .63 415 .44 417 .24 413 .04 445 .18 417 .54 444 .75 .74 349 .44 445 .50 445 .80 .80 .30 .30 .30 .30 .30 .30 .30 .30 .30 .3	
00	98.	.08 29 51 73	16 59 02 45	3118	61 04 90	76 63 49 35	21 08 94 80	99
2	24	31 43 49	62 87 99	111 124 136 149	161 174 186 198	223 248 273 298	23. 48. 72.	22
4	92	95 13 32 51	89 27 65 03	16 16 54	92 29 10 05 11 05 11	81 56 32 08 08		364
58 1/4	24.	30. 37. 43.	61. 74. 86. 99.	1111. 123. 136. 148.	60 85 98 98	222. 247. 272. 297.		
1	65	81 98 14 30	63 95 60 60	93 25 58 10 90	23 55 1 20 1	85 50 15 80 80 22 22 23 23	0000	4 4
28	24.	36.	61. 73. 86. 98.	110. 123. 135.	160 172 184 197	221.8 246.5 271.1 295.8		
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2/ /2	24.44	30.5 36.6 42.7 48.8		9.97 2.19 4.41 3.63	8.84 1.06 3.28 5.50	94 8.38 81 25		
0			61 73 97	109. 122. 134. 146.	158 171 183 195	219 244 268 293	317 342 366 391	415
7								
20	24		922	109 121 133 145	158 170 182 194	218 243 267 291	316 340 364 389	113
	.23		568 68 79 90	01 13 24 35	46 58 69 80 80	255 255 70	312. 16 313.54 314.93 316. 31 317. 69 319. 07 320. 45 321. 83 323. 21 324. 59 325. 98 327. 36 336. 18 37. 66 338. 18 346. 56 388. 16 346. 56 388. 16 346. 56 388. 16 346. 56 388. 16 346. 56 388. 16 346. 56 388. 16 346. 56 388. 16 346. 56 348. 18 347. 59 377. 29 386. 387. 60 389. 391. 00 392. 70 392. 70 387. 60 389. 364. 20 386. 348. 347. 347. 347. 347. 347. 347. 347. 347	83
0	24	36 36 42 48 48	60 72 84 96	100 121 133 145	157 169 181 193	242 242 266 390	114 339 87	11.
7	12	15 18 21 24 24	30 4 4 8 4 8 8 4 8 8	53 59 71	77 83 89 95	119 23 23 23 23 23 23 23 23 23 23 23 23 23		14 4
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	1 00							
		B S C S	" Lagarata	150 150A	1 15/8/2/2	70/4/0/4		227
177 167	W	24.12 24.23 24.33	24.01 24.12 24.23 24.33 30.02 30.15 36.18 36.50 42.02 42.02 42.02 48.45 48.45 48.66	24.01 24.12 24.23 24.33 30.02 30.15 30.28 30.41 36.20 42.02 42.14 42.34 42.56 42.02 42.02 42.54 48.45 48.66 60.03 60.03 60.05	24.01 24.12 24.23 24.33 30.02 30.15 36.18 36.50 41 36.02 36.18 38.34 36.50 42.02 42.02 42.14 42.39 42.58 42.02 42.02 42.21 42.39 42.58 42.02 42.02 42.21 42.39 42.58 42.02 42.03 60.36 60.36 60.56 60.83 72.99 84.04 84.28 84.79 85.16 96.05 96.05 97.33 108.06 108.53 109.01 109.49 1132.06 1132.07 132.65 133.24 133.24 133.24 133.24 134.08 144.08 144.71 145.35 145.39 11	24.01 24.12 24.23 24.33 30.02 30.15 30.28 30.41 36.50 42.52 42.52 42.52 48.35 42.58	24.01 24.12 24.23 24.33 30.02 30.15 36.50 41 36.50 42.52 42.32 42.58 42.59 120 60.50	24.01 24.12 24.23 24.33 30.28 30.14 30.02 30.15 30.28 30.41 30.02 30.15 30.28 30.41 30.02 30.15 30.28 30.41 30.02 30.15 30.28 30.41 30.02 30.15 30.28 30.41 30.02 30.15 30.28 30.41 30.02 30.15 30.02 30.02 30.15 30.02 30.15 30.02 30.15 30.02

SE		60.	87 64 41 19	38388	92 02 56	111 666 75	94 94 13	31 31 50 50	69
	63 3/4	27.0	33.8 40.6 47.4 54.1	67.7 81.8 94.8			243. 270. 298. 325.	352 379 406 433	460.487
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	63 1/2	96.9		67.4 80.9 94.4 107.9			242. 269. 296. 323.	350. 377. 404. 431.	458.
	9	26	33 40 47 53		121 134 148 161	3 175 7 188 1 202 5 215	93 24 81 2 58 32 58 33	22 4 4 3 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	98 4
	63 1/4	88.	.04 .76	.53 .53	.97 .85 .29	8.73 8.17 1.61 5.05	20.00		
8	63	26	33 40 47 53	67 80 94 107	120 134 147 161	174 188 201 215	241. 268. 295. 322.	349. 376. 376. 403. 430.	5 483.
		100	16 16 55	94 33 71 10	.88 .26 .65	.04 .81 .20	98	3.08 1.85 1.63 3.40	5.18
	63	26.	33 40 46 53	66 80 93 107	120 133 147 160	174. 187. 200. 214.	240 267 294 321	348 374 401 428	455
	14	29	34 34	67 01 34 68	01 34 68 01	35 68 02 35	.03 .03	.03 .70	.04
	62 3/4	26.	33. 40. 53.	66. 93. 106.	120. 133. 146. 160.	173. 186. 200. 213.	240 266 293 320	346 373 400 426	453
		56	20 84 48 13	41 69 97 25 1	53 1 81 1 09 1 38 1	8423	06 63 19 75	31 88 44 00	56
	62 1/2	26.5	33.2 39.8 46.4 53.1	66.4 79.6 92.9	119. 132. 146. 159.	172. 185. 199. 212.	289. 265. 292. 318.	345. 371. 398. 425.	451
75	9			14 37 60 83 10	05 28 51 74 1	97 172.6 19 185.9 42 199.3 65 212.4	111 56 02 48 3	93 30 30 4	21
E	621/4	3.46	33.07 39.68 46.30 52.91			171.9 185.1 198.4 211.6	238.1 264.6 291.0 317.4	343. 370. 396. 423.	.95 449.
N.	9	26		66 79 92 105	\$ 119 \$ 132 \$ 145 \$ 158	28 171 45 185 63 198 80 211	15 25 25 25 25 25 25 25 25 25 25 25 25 25	555 90 80 80 80 80 80	30 4
1	62	.35	.94 .53 .11		3.58 1.75 4.93 8.10			342.5 368.9 395.2 421.6	7.4
TH	9	26	32 39 46 52	65. 79. 92. 105.	118. 131. 144. 158.	171 184 197 210	237 263 289 3 289	339	14 447.
WIDTH, INCHES	3/4	24	80 37 93 49	61 85 98	.10 .34 .46	.58 .71 .83	3.68 3.68 4.93	7.41 7.41 3.66 9.90	6.1
	613	26.	320 330	65. 78. 91.	118 131 144 157	170 183 196 209	236. 262. 288. 314.	341. 367. 393. 419.	446.
	1/2	14	67 21 28 28	34 41 55	62 69 76 83	96.03	.51 .65	93	.34
	61 1/	26.	32.	655 91 04	117 130 143 156	169 182 196 209	235. 261. 287. 313.	339 365 392 418	444
1	-	03	505		14 16 17 19	2222	33 33 38 38	44 47 50	53
	61 1/4	26.0	32.33		117. 130. 143. 156.	169. 182. 195. 208.	234. 260. 286. 312.	338 364 390 416	442
1	9	1	889 87 87 87		66 63 59 1 55 1	51 11 14 44 10 20	10823	95.88	73
1	61	25.93	4.88.6.4			168.5 181.4 194.2	233 259. 285. 311.		
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	09	25				167 1193 206	232 258 258 258 309		3 46
	1	1		. 128 . 144 . 99	71 . 56 . 42 . 28	2.99	22.84	5.69	
1	60 1/2	9.5	288 4			167 179 192 205	231 257 282 308		437
18	-	1 5	1001	6222					
	71 09	36			1115	166 179 192 204	230 256 281 281	3322	435
-	-	1						13	8 1
	Thickness Inches	1	× 222	4 75/6/27	2 /2/2/2	4 2/2/2	7674%	2004/20	222 6
-	hicknes	-	المراهات	10 10 10 1cm	81	7 7-		i	4 0101
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	671/2	.69	380338	.72 .06 .41 .75	94 821	81 16 50	25 25 25	94	
	67	28	35 50 57	71. 86. 100. 114.		186 200 215 229	258 286 315 344	372 401 430 459	487
	1/4	.58	73 87 02 16	45 74 03 33	62 91 20 49	78 07 86 65	23 39 98 98	256 14 72 30	88
1	67	28	35 50 57 57	71 855 100 114	128 142 157 171	185 200 214 228	257 285 314 342	371. 400. 428. 457.	485.
	1	48	59 71 83 95	19 66 90 90	14 38 61 85	86839	78328	655	80 10
	67	28	35 42 56 56	71 85 99 113	128 142 156 170	185. 199. 213. 227.	256. 284. 313. 341.	370. 398. 427. 455.	484
=	3/4	37	55 74 74	92 111 29 48	66 84 03 21	58 77 95	32 69 06 43	16 19 20 30 30 30 30	
B	99	28	35 44 56 56	25 99 113	127. 141. 156. 170.	184. 198. 212. 226.	255. 283. 312. 340.	368. 397. 425.	482.
P	1/2	26	33 30 53 53 53	66 79 92 05	524.31	71 84 97 10	36 63 15	41 68 94 20	46
1	99	28	35 44 56 69 56	70. 84. 98. 113.	127 141 155 169	183. 197. 211. 226.	282. 310. 339.	395. 423. 452.	480.
3	1/4	16	27330	39 55 63	70 78 86 94	02 09 17 25	82 88 88	03 19 34 50	. 40 464. 21 466. 01 467. 82 469. 63 471. 43 473. 24 475. 04 476. 50 476. 50 450. 50 453. 20 455. 60 457. 30 459. 60 491. 51 493. 43 495. 34 497. 25 499. 16 501. 08 502. 99 504. 90 506. 81 508. 73 510. 64 512. 55 514. 46 516
L	66 1/4	28	35 44 56 56	70 84 84 112	126 140 154 168	183 197 211 225	253 281 309 337	366. 394. 422. 450.	478.
SE	10	05	000001	113	223	8883	50000	82208	85
WIDTH, INCHES	99	28	35 40 56 56	70. 84. 98. 112.	126 140 154 168	182 196 210 224	252. 280. 308. 336.	364. 392. 420. 448.	01 467 82 469 68 471 48 473 24 475 04 476 85 478 66 480 46 482 27 484 08 43 495 34 497 25 499 16 501 08 502 99 504 90 506 81 508 73 510 64 512 55
N	3/4	94	80000	78088	75 72 69 66	63 58 55	944 388 333	27 21 16 10	90
ГH,	65	27	34 41 55	69. 83. 97.	125. 139. 153. 167.	181. 195. 209. 223.	251 279 307 335	363. 391. 419.	475
ID,	1/2	.84	80 72 68	59 43 35	27 19 11 03	94 86 78 70	38 21 21 05	89 73 56 40	24
W	65 1/2	27	34 441. 555.	69 83 97 1111	125 139 153 167	180 194 208 222	250 278 306 334	361 389 417 445	473
	1/4	.73	66 66 66 66 66 66 66 66 66 66 66 66 66	33 19 06 93	79 66 52 39	25 12 98 85	31 04 78	51 24 97 70	43
	65	27	4444	69 83 97 110	124. 138. 152. 166.	180 194 207 221	249 277 305 332	360 388 415 443	471
	10	63	24 4 4 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	90 88 88 50	31 13 94 75	38 19 00	63 25 50 50	88213	63
2	65	27	45.5 4.1 4.0 5.5	69 82. 96. 110.	124 138 151 165	179. 193. 207. 221.	248 276 303 331	359. 386. 414. 442.	469.
	34	.52	940	93280	83 59 35 11	87 63 39 15	67 119 71 23	74 26 78 30	34
	64	27	34 48 48 55	68 82 82 96 110	123 137 151 165	178 192 206 220	247 275 302 330	357 385. 412. 440.	467.
-	1/2	41	27 12 97 83	53 94 65	36 06 77 48	18 89 89 30	71 13 54 95	36 178 19 60	01
E	64 1/2	27	45 44 45 45	68. 82. 95. 109.	123 137 150 164	178 191 205 219	246 274 301 328	356 383 411 438	466
-	1/4	.31	. 13 . 96 . 79 . 61	92 92 92 93	855.25	40 40 45 45	76 06 37 68	98 29 59 90	21 51
E	64 1/4	27.	40 47 47 47	68. 81. 95. 109.	122 136 150 163	177 191 204 218	245 273 300 327	354 382. 409. 436.	464.21 466.01 467.82 469.63 471.43 473.24 491.51 493.43 495.34 497.25 499.16 501.08
-	4	.20	8884	8888	4888	8488	8888	8888	40
	64	27	404 47 47 47	68. 81. 95. 108.	122 136 149 163	176 190 204 217	244 272 299 326	353 380 408 435	462
Thickness,	Inches	1,00	%%%X	727082	1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	1 15/2/2	777877 777877 77877	2000 2000 2000 2000 2000 2000 2000 200	21%

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-	11	30.18	37.72 45.26 52.81 60.35	75.44 90.53 05.61 20.70	135.79 150.88 165.96 181.05	196.14 211.23 226.31 241.40	271.58 301.75 331.93 362.10	392.28 422.45 452.63 482.80	512.98 543.15
	34	.07	59 10 62 14	21 24 28 1	38	25.5.5.5.5.5.5.5.5.5.5.5.5.5.5.5.5.5.5.	69 69 76 83	390.89 420.96 451.03 481.10	511.17
-	1/2 70	96 30	45 37 94 45 43 52 93 60	91 75 89 90 87 105 85 120	83 135 81 150 79 165 78 180	.76 195 .74 210 .72 225 .70 240	.66 270 .63 300 .59 330 .55 360	51 48 44 40	36
-	701/2	86 29.	32 778 44 71 52 52 52 71	64 74 57 89 50 104 43 119	35 134 28 149 21 164 14 179	07 194 99 209 92 224 85 239	71 269 56 299 42 329 28 359	13 389 99 419 84 449 70 479	56 509 41 539
	70 1/4	29.	37. 52. 59.	74. 89. 104. 119.	134. 149. 164. 179.	194. 208. 223. 238.	268. 298. 328. 358.	388. 417. 447.	507.
	02	29.75	37.19 44.63 52.06 59.50	74.38 89.25 104.13 119.00	133.88 148.75 163.63 178.50	193.38 208.25 223.13 238.00	267.75 297.50 327.25 357.00	386.75 416.50 446.25 476.00	505.75
-	69 3/4	29.64	37.05 44.47 51.88 59.29	74.11 88.93 103.75 118.58	133.40 148.22 163.04 177.86	192.68 207.51 222.33 237.15	266.79 296.44 326.08 355.73	385.37 415.01 444.66 474.30	503.94
INCHES	1/2	54	92 80 08	84 61 38 15	92 69 46 23	99 76 30 30	84 38 91 45	99	14
	69	43 29	79 36 15 44 50 51 86 59	58 73 29 88 01 103 73 118	. 44 132 .16 147 .87 162 .59 177	30 191 02 206 73 221 45 236	88 265 31 295 74 324 18 354	61 383 04 413 47 443 90 472	33 502
WIDTH,	69 1/4	29	36. 44. 51.	73. 88. 103.	132 147 161 176	61 191. 28 206. 94 220. 60 235.	93 264. 25 294. 58 323. 90 353.	23 382 55 412 88 441 20 470	53 500 85 529
3	69	29.33	36.66 43.99 51.32 58.65	73.31 87.98 102.64 117.30	131.96 146.63 161.29 175.95	190. 205. 219. 234.	263. 293. 322.	381. 410. 439.	498.
3	68 3/4	29.22	36,52 43.83 51.13 58.44	73.05 87.66 102.27 116.88	131.48 146.09 160.70 175.31	189.92 204.53 219.14 233.75	262.97 292.19 321.41 350.63	379.84 409.06 438.28 467.50	496.72
	1/2	11.	39 67 95 23	78 34 89 45	01 56 112 68	23 34 90	01 13 24 35	46 69 80 80	91
1 - 0	4 68	01 29	26 36 51 43 76 50 01 58	52 72 02 87 52 101 03 116	53 131 03 145 53 160 04 174	.54 189 .04 203 .55 218 .05 232	.06 262 .06 291 .07 320 .08 349	.08 378 .09 407 .09 436 .10 465	.11 494
1	68 1/4	29.	13 36. 35 43. 58 50. 80 58.	25 72. 70 87. 15 101. 60 116.	05 130. 50 145. 95 159. 40 174.	85 188 30 203 75 217 20 232	10 261 00 290 90 319 80 348	70 377 60 406 50 435 40 464	30 493
	89	28.90	36. 43. 50.	72. 86. 101. 115.	130. 144. 158. 173.	202. 202. 216. 231.	260. 289. 317. 346.	375. 404. 433. 462.	491.
1	67 3%	28.79	35.99 43.19 50.39	71.98 86.38 100.78 115.18	129.57 143.97 158.37 172.76	187.16 201.56 215.95 230.35	259.14 287.94 316.73 345.53	374.32 403.11 431.91 460.70	489.49
Thistrope	Inches	1,8	8/2/87					22 1 1 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	200

Foot - Confinited
Lineal
Per
1 Steel, Pounds Per Lineal F
Steel,
Flat Rolled
Flat
Weights of

IES	73 1/2 73 3/4 74 1/4 74 1/2 74 3/4 75	31.24 31.34 31.45 31.56 31.66 31	39 05 39 18 39 31 39 45 39 58 39 71 39 46 86 47 02 47 18 47 33 47 49 47 65 47 65 47 65 47 65 65 65 65 65 65 65 65 65 65 65 65 65	79.42 79. 95.31 95. 111.19111.	140. 57 141. 05 141. 53 142 00 142. 48 142. 96 143. 156. 19 156. 72 157. 25 157. 78 158. 31 158. 84 159. 177. 81 172. 89 173. 86 174. 1474. 73 175 187. 43 188. 06 188. 70 189. 34 189. 98 190. 611 191	203.04 203.73 204.43 205.12 205.81 206.50 207.218.66 219.41 220.15 220.89 221.64 222.38 223.234.28 236.50 8235.88 236.67 237.47 238.27 239.24.90 200.75 251.60 252.45 253.30 254.15 255.	285.92 286. 317.69 318. 349.46 350.	23 411 61 412 99 414 79 443 28 444 76 446 34 474 94 476 53 473 90 506 60 508 30 510	536.46 538.26 540.07 541.
, INCHES	731/4	31.13	38.91 46.70 54.48 62.26	77.83 93.39 108.96 124.53	140.09 155.66 171.22 186.79	202.35 217.92 233.48 249.05	280.18 311.31 342.44 373.58	404.71 435.84 466.97 498.10	529.23 5
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Thickness, -	Inches	7%	7,8%,8%			112/88/8/8/11	1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,	2, 1, 1, 2, 2, 2, 2, 2, 2, 2, 4, 4, 4, 4, 4, 4, 4, 4, 4, 4, 4, 4, 4,	27%

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Thickness,	Inches	7,80	78.278.4	1200/2/2	12 12 12 14 14 14 14 14 14 14 14 14 14 14 14 14	125,77,71	7.074/2/2	1000 1000 1000 1000 1000 1000 1000 100	227%

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/2°/2°/4	165 183 202 220	43 19 58 58	165. 184. 202. 221.	91 34 21 21 21 21	166.3 184.8 203.3 221.8	39 16 88 18 36 20 85 22	166.8 185.4 203.9 222.4	87 16 41 18 95 20 49 22	167.34 185.94 204.53 223.13	4 167 4 186 3 205 3 223	6.47 6.47 3.76	2 168 2 205 2 205 6 224	8.7.0	.30 168. .00 187. .70 206. .40 225.	5.00	78 169 53 188 28 206 04 225		26 16 06 18 87 20 68 22	169.7 188.5 207.4 226.3	.73 17 59 18 45 20 31 22		21 17 13 18 04 20 95 22	170.6 189.6 208.6 227.5	69 171 66 190 62 209 59 228	1008	17 171 19 190 21 209 23 228		65 17 79 21 2 2 3 2 3 3 3 3 3 3 3 3 3 3 3 3 3 3	
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Thioknose	Inches	7874	12/8/2/2 2/2/2/2	12% 12%	12,72,76	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	1110 10/4/20 10/4/20	7,27

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WIDTH, INCHES	66	74.	105. 127. 148. 169.	190. 211. 233. 254.	275. 296. 317. 339.	381. 423. 466. 508.	551. 593. 635. 678.	720
Z	1/2	000	72 86 01 15	29 44 73 73	87 01 16 30	59 88 16 45	74 03 31 60	.89
ін,	99 1	74.	105. 126. 148. 169.	190. 211. 232. 253.	274. 296. 317.	380. 422. 465. 507.	549 592 634 676	718
	4	36	73	91000	18 27 36 45	63 99 18	36 54 72 90	08
2	991/4	73.	105. 126. 147. 168.	189. 210. 232. 253.	274. 295. 316.	379 421 463 506	548 590 632 674	717
18	- 8	63	19 28 30	38 41 45 45	53	9833	98 05 13 20	35.00
3	66	73.	105. 126. 147. 168.	189. 210. 231. 252.	273 294 315 336	378 420 462 504	546 589 631 673	715
	3/4	45	92 91 88 88	883	772	72 69 66 66 63	59	47
	983	73.	104. 125. 146. 167.	188. 209. 230. 251.	272 293 314 335	377 419 461 503	545 587 629 671	713.
	77	26	66 59 52 45	38 31 24 18	11 04 97 90	76 63 49 35	898	.53
	98 1/2	73.	104. 125. 146. 167.	188. 209. 230. 251.	272 293 313 334	376 418 460 502	544 586 627 669	7111
	4	07	39 27 15 03	90 24 66	42 29 17 05	81 56 32 08	83 34 10	86
	981/4	73.	104. 125. 146. 167.	208. 229. 250.	271 292 313 334	375 417 459 501	542 584 626 668	709
	-	30	13 95 78 60	255 08 90 90	20 38 20 20	80 80 80	45 10 75 40	.70
	98	72.	104. 124. 145. 166.	187. 208. 229. 249.	270. 291. 312.	374 416 458 499	541 583 624 666	708
-	3/4	000	86 63 40 18	95 72 49 26	.03 .58 .35 .35	89 44 53	.07 61 16 .70	.79
-	973	72.	103. 124. 145. 166.	186. 207. 228. 249.	270 290 311 332	373 415 456 498	540 581 623 664	747
	ess,		3 1					
	Thickness Inches	22/4	12/2/2/2	92/8/2/4	1 15/8/16	72422	2000	22%

	1 4	91	85 82 82 83 83 83 83 83 83 83 83 83 83 83 83 83	33 559 11	P8010	, Le1e	# (D M C	0) -4
	104 3/4	9.77						
	* Commission of the last of th	1	3 1111 1133 1155 178	200 2222 244 267	289 331 356	445 445 489 489		
	104 1/2	3.83		.86 .06 .27 .48	88888			01
	-	77	111 133 155 177	199 222 244 266	288. 310. 333.	399 444 488 488 532	577 621 666 710	755
	104 1/4	.54	92 07 23	38 53 84 84	99 14 30 45	76	200	21
	10	77	50 110 60 132 70 155 80 177	199.3 221.2 243.6 265.8	287 310 332 354	398 443 487	575. 620. 664.	753.
	104	35	800	8000	30 50 50 60	9000	80 60	900
	10	77.	3 110.5 3 132.6 3 154.7 3 176.8	198. 221. 243. 265.	287. 309. 331. 353.	397. 442. 486. 530.		.59 751.
	34	16	2000	47 52 52 56	66 66 70 75 33	84 3 94 4 03 4 4 13 5	22 31 6 41 50 7	200
	103	77	110. 132. 154. 176.	198. 220. 242. 264.	286. 308. 330. 352.	396. 440. 485. 529.	573.2 617.3 661.4 705.8	749.5
	1/2	86	97 96 1 96 1 95 1	94 94 93 93 22 93	90188	88 88 88 86 85 85 85 85 85 85 85 85 85 85 85 85 85	84 57 83 61 80 70	79 74 78 78
70	103 1/2	76.	109. 131. 153. 175.	197.9 219.9 241.9 263.9	285.9 307.9 329.9 351.9			7.7
HES	-	79	70 64 58 1 53	47 41 35 29 29 29	5173	93 395 81 439 69 483 58 527	6 571 4 615 2 659 0 703	3 747.
WIDTH, INCHES	1031/4	76.7	109.7 131.6 153.5 175.5		5.23 7.17 9.11 1.05		0.46 4.34 8.22 2.10	5.98
F.			21 15 21 15 21 15 10 17	9 197 8 219 6 241 5 263	1 285 3 307 3 329 351	394 438 482 526	614. 658. 702.	745.
TH	103	76.61 87.55		196.99 218.88 240.76 262.65	5.43 5.43 5.20	3.5.2		.95
1			7 109 1 131 1 153 3 175	12 24 26 26	284 306 328 350	393.98 3 437.75 4 481.53 4 525.30 5	569. 612. 656. 700.	744.18
	102 34	76.42	9.17 1.01 2.84 4.68	3.51 3.34 3.18 3.01	. 68	020		.04
	1		109 131 152 174	196. 218. 240. 262.	283 305 327 349	393. 436. 480. 524.	567 611 655 698	56 742 13 786
	102 1/2	.13	.91 .69 .47	.03 .59 .38	.16 .94 .72 .50	.06 63 19 75	31 88 44 00	13
	10	76	108 130 152 174	196. 217. 239. 261.	283 304 326 348	392. 435. 479. 522.	566. 609. 653. 697.	76 740. 21 784.
	102 1/4	.91	83 83 83	55 28 01 74	47 19 92 65	11 56 02 48	30 84 80 80	76
	10	76.	108 130 152 173	195 217 239 260	282. 304. 325. 347.	391 434 478 521	564. 608. 651. 695.	738.
	2	98	.38 108. .05 130. .73 152. .40 173.8	08 75 10 10	45 113 80	15 50 85 85 20 50	55 5 90 6 25 6 60 6	95 7
	102	75.	108. 130. 151. 173.	195.08 195.55 1 216.75 217.28 2 1238.43 239.01 2 260.10 260.74 2	281. 303. 325. 346.	390. 433. 476. 520.	563. 606. 650. 693.	
1	3/4	68	11 73 35 98	60 22 84 46 46	08 71 33 95	119 444 688 93	17 5 41 6 66 6 90 6	14 736 39 780
4	101	75.	108. 129. 151. 172.	194. 216. 237. 259.	281. 302. 324. 345.	389. 432. 475. 518.	562.1 605.4 648.6 691.9	735.1
	1/2	28	84 41 98 55	83 25 2 1 2 1 2 2 1 2 2 2 2 2 2 2 2 2 2 2	39 96 53 10 33	24 38 51 51 55 55	20 66 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	34 7
-	101 1/2	75.	107. 129. 150.	194. 215. 237. 258.	280. 301. 323. 345.	388.2 431.3 474.5 517.6	560.7 603.9 647.0 690.2	733.3
89		13		-000	010000	2440	0000	77
Thickness,	Inches	18/4	12/2/2/2	12/0/2/4	12/2/2	1001 001 001 00	\00\wk\00	\
hie	Inc	E. 10/	10, 10, to, m/	72/2/2/4	15/8/8/1	1111 1/4%/X	2001-100 1000-1-100	227

											WI	WIDTH, INCHES	I, I	NC	HE	202							3	1			
Thickness, Inches	105	10	1051/4	105	51/2	10	105 34	30	106	1061/4	17	106 1/2	1/2	106 34	34	107		107 1/4	1/4	107 1/2	-	107	3/4	108		1081/4	7
22.4	78.09 89.25	78	3.28	78	.68	78.	. 65	78	.10	79.	02	79.	21	79.	40	79.	95	79.	77	79.	38	91.	14	80.	33	80.	51
	111.56 133.88 156.19 178.50	1111 1134 1156 1178	1.83 1.19 3.56 3.93	112 134 156 179	.93	112 134 157 179	383.38	112 135 157 157 180	63 15 68 20	112. 135. 158.	889 47 05 63	1135 135 158 181	16 779 42 05	113. 136. 158. 181.	111 179 488	113. 136. 159. 181.	69 43 16 90	113. 136. 159.	95	113.95 114.2 136.74 137.0 159.53 159.9 182.33 182.7	20-10	1114. 137. 160. 183.	288 181 181	1114. 137. 160. 183.	75 1 70 1 65 1 60 1	115. 138. 161. 184.	03222
% 12 % 12 % A	200.81 223.13 245.44 267.75	201 223 223 246 246 268	3.39	201 224 246 269	77. 119 61. 03	202. 224. 247. 269.	.25 .72 .19 .66	202. 225. 247. 270.	38823	203. 225. 248. 270.	20 778 36 94	203. 226. 248. 271.	68 31 94 58	204 226 249 272	16 84 53 21	204. 227. 250. 272.	85 111 85	205. 227. 250. 273.	112 91 70 49	205. 228. 251. 274.	28 13 13 13	206. 228. 251. 274.	97.2 97.2 76.2 76.2	206. 229. 252. 275.	555 50 20 20 40 20 20 20 20 20 20 20 20 20 20 20 20 20	207. 230. 253. 276.	033
115/88/11	290.06 312.38 334.69 357.00	290. 3313. 335.	3.12 3.12 7.85 7.85	291. 313. 336. 358		292 314 337 359	.13 .08 .55	292. 315. 337. 360.	88.35	293. 316. 338. 361.	52 09 67 25	294. 316. 339. 362.	21 84 10 10	294 317 340 362	90 58 27 95	295. 318. 341. 363.	33 33 80 80	296. 319. 341. 364.	28 07 86 65	296. 319. 342. 365.	97 81 66 50	297. 320. 343. 366.	956 3 35 35 3	298. 321. 344. 367.	2023	322. 345. 368.	04 04 05 05
774%7	401.63 446.25 490.88 535.50	3 402 5 447 8 492 5 536	2.58 7.31 2.04 3.78	403 4448 493 538	3.38 3.21 3.05	404 449 494 539	44. 44. 388. 333.	405. 450. 495. 540.	45 50 55 60	406. 451. 496. 541.	41 56 72 88	407. 452. 497. 543	36 63 89 15	408. 453. 499. 544.	32 69 06 43	454. 500. 545.	7033	410. 455. 501. 546.	233 39 98	411. 456. 502. 548.	19 88 56 25	412. 457. 503. 549.	14 14 173 53	413. 459. 504. 550.	00008	414. 460. 506. 552.	00 00 07 08
2000 C	580.13 624.75 669.38 714.00	\$ 581. \$ 626. \$ 670.	1.51 6.24 0.97 5.70	585 627 672 717	582.89 627.73 672.56 717.40	584. 629. 674. 719.	1.27 9.21 1.16 9.10	585. 630. 675.	.65 .70 .75	587. 632. 677. 722.	03 19 34 50	588 633 678 724	41 94 20	589. 635. 680. 725.	79 16 53 90	591. 636. 682. 727.	18 65 113 60	638 683 729	56 14 72 30	593. 639. 685. 731.	94	595. 641. 686. 732.	32 11 91 70	596. 642. 688. 734.	000 000 000 000 000 000 000 000 000 00	598. 644. 690. 736.	000 000 100
2.62	758.63 803.25	3 760	5.16	3 762.	7.08	.24 764. .08 808.	8.99	810.	85	767.	66	769.	46	771.	27	773.08 774. 818.55 820.	.08	774	88	776	.69 778. 38 824.	778.	. 29 826.	326.	30	782.	==

TH, INCHES	110 1101/2 1103/2 111 111 1/1 1113/2 1113/4	800	88 117 14 117 41 117 67 117 94 118 20 118 47 1 25 140 57 140 89 141 21 141 53 141 84 142 161 163 164 00 164 37 164 74 165 11 165 48 165 86 1 00 187 48 187 85 188 28 188 70 189 13 189 55 1	38 210 . 85 211 . 33 211 . 81 212 . 29 212 . 77 213 . 24 213 . 75 224 . 28 234 . 81 235 . 34 235 . 88 236 . 41 236 . 94 237 . 57 27 7 1 2 58 . 92 258 . 88 294 . 61 260 . 62 240 . 63 261 . 65 260 . 63 261 . 63 2	88 304 . 57 305 . 26 305 . 95 306 64 307 . 33 308 . 02 308 . 02 337 . 33 308 . 02 308 . 02 337 . 03 308 . 02 308 . 03 308 . 02 308 . 03 308 . 02 308 . 03 308 . 02 308 . 03 308 . 02 308 . 03 30	75 421 71 422 66 423 62 424 58 425 53 426 49 427 70 458 466 66 67 470 69 471 75 472 81 473 88 474 75 15 425 15 42 516 53 50 517 76 518 98 520 98 521 98 520 98 521 52 50 52 55 564 83 566 10 567 38 568 55 56	75 609 .13 610 .51 611 .89 613 .28 614 .66 616 .04 617 .50 655 .99 657 .48 .688 .06 660 .45 661 .94 663 .43 664 .25 770 .84 .704 .44 .706 .03 .707 .63 .709 .25 .710 .81 .712 .00 .749 .70 .731 .40 .733 .10 .754 .80 .756 .50 .758 .20 .758	75 796 .56 798 .36 800 .17 801 .98 803 .78 805 .59 807 . 50 843 .41 845 .33 847 .24 849 .15 851 .06 852 .98 854 .
WIDTH,	1091/2 1093/4	81.44 93.08 93.29 93.29	116.34 116.61 116 139.61 139.93 140 162.88 163.25 163 186.15 186.58 187	209.42 209.90 210. 232.69 233.22 233. 255.96 256.54 257. 279.23 279.86 280.	302.49 303.18 303.325.76 326.51 327.349.03 349.83 350.374.374.	418.84 419.79 420. 465.38 466.44 467. 511.91 513.08 514. 558.45 559.73 561.	4.99 606.37 607 1.53 653.01 654 8.06 699.66 701 4.60 746.30 748	1.14 792.94 794. 7.68 839.59 841.
	109 1091/4	81.07 81.25 92.65 92.86	81 116.08 98 139.29 14 162.51 30 185.73	208.46 208.94 2 231.63 232.16 2 254.79 255.37 2 277.95 278.59 2	301.11 301.80 3 324.28 325.02 3 347.44 348.23 3 370.60 371.45 3	416.93 417.88 41 463.25 464.31 40 509.58 510.74 51 555.90 557.18 55	602.23 603.61 604 648.55 650.04 651 694.88 696.47 698 741.20 742.90 744	785.72 787.53 789.33 791. 831.94 833.85 835.76 837.
	1081/2 1083/4	80.70 80.88 92.23 92.44	.28 115 .34 138 .39 161 .45 184	. 51 207.98 . 56 231.09 . 62 254.20 . 68 277.31	. 73 300 .42 .79 323 .53 .84 346 .64 .90 369 .75	.01 415.97 .13 462.19 .24 508.41 .35 554.63	86.69	783.91 785.72 78 830.03 831.94 83
Thickness,	Inches	7874						227%

					2101-400	m-10x	72 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	99
-	74	72	943	910.89	85.87	.83 .79 .78		
	1151/4	85	122 146 171 195	220 244 269 293	318. 342. 367. 391.	440 489 538 587	636 685 734 783	881
		53	119 63 06 50	251	69 113 00 00	88 75 63 50	255	.75
	115	85.	122. 146. 171. 195.	219. 244. 268. 293.	342. 342. 366. 391.	439. 488. 537. 586.	635. 684. 733. 782.	830
	34	35	92 31 69 08	84 84 23 61	00 38 77 15	92 69 46 23	99 76 53 30	84
1	1143	97.1	121.9 146.9 170.0 195.0	219. 243. 268. 292.	317. 341. 365. 390.	438. 487. 536. 585.	633. 682. 731. 780.	829.
		16	99 1 32 1 65 1	98 31 64 98 98	31 64 97 30	96 63 29 95 95	61 28 94 60	93
	114 1/2	97.5	121.6 145.9 170.3	243. 243. 267. 291.	316. 340. 364. 389.	486. 535. 583.	632. 681. 729. 778.	827.
		97	39 1 67 1 95 1	20 20 34 34 34	62 89 17 17 45	01 56 12 68	23 34 90	46
	1141/4	97.1	121.3 145.6 169.9 194.3	242. 267. 267.	315. 339. 364. 388.	485. 534. 582.	631. 679. 728. 776.	825.46 874.01
		90	13 35 13 80 13	03 25 25 70 70	93 15 38 60	05 50 95 40	85 30 75 20	10
70	114	84.7	121.1 145.3 169.5 193.8	242. 242. 266. 290.	314. 339. 363.	436. 484. 532. 581.	629. 678. 726.	823.
HE	34	09	86 03 1 20 38 1	55 72 72 89 89 06	23	09 44 78 13	47 81 16 50	84
INCHES	1133	84.(120.8 145.0 169.1	217. 241. 265. 290.	314. 338. 362. 386.	435. 483. 531. 580.	628. 676. 725.	821 870
		48	59 71 83 1 95	07 119 31 43	54 66 78 90	14 38 61 85	933	04
WIDTH,	1131/2	84.	120. 144. 168. 192.	217. 241. 265. 289.	313. 337. 361. 385.	434. 482. 530. 578.	675. 723. 771.	820.
W		23	333 39 46 53	226	50000	31 31 58 58	71 84 97 10	36
	1131/4	84.	120. 144. 168. 192.	216. 240. 264. 288.	312.8 336.9 360.9 385.0	433. 481. 529.	625. 673. 721. 770.	818.
		0.00	000	11245	16 19 20	2223	333	45
	113	84.0	80 120.0 76 144.0 72 168.0 68 192.1	216. 240. 264. 288.	312. 336. 360.	432. 480. 528. 576.	624. 672. 720. 768.	816 864
	34	86	76 72 68 68	555	243 39 35	27 119 111 03	94 78 70 70	.54
	1123	95.	119. 143. 167.	215. 239. 263. 287.	3111. 335. 359. 383.	431. 479. 527. 575.	622 670 718 766	814.
	n	63	234 44 23	16 06 97 88	78 69 50 50	31 13 94 75	38 38 00	.63
	112 1/2	93	119. 143. 167.	215. 239. 262. 286.	310. 334. 358.	430. 478. 525. 573.	621. 669. 717. 765.	812.
	14	49	27 12 97 83	2382	94 94 80 65	36 06 77 48	. 59 . 59 . 30	.01
	1121/4	83.	119. 143. 166.	214. 238. 262. 286.	310 333 357 381	429 477 524 572	620. 667. 715. 763.	858.
	-	1000	9000	8808	9888	90000	8400	.80
	112	83.	119. 142. 166. 190.	214 238 261 285	309. 333. 357.	428 476 523 571	618 666 714 761	856
	38,							
	Thickness, Inches	12/4	12/2/27	75/8/5/4	12/2/2	7674	2000 100 100 100 100 100 100 100 100 100	200
	F.							

Thickness.	1	1	3			-			3			A	WIDTH,	LH,	INCHES	CH	ES											
Inches	118	1151/2	115 34	34	=	116	116	1161/4	1161/2	1/2	11634	34	=	1117	=	11714	=	1171/2	117	73%	-	118	=======================================	1181/4	=	1181/2	-	11834
7874	98.	.18	986	93	98.	28		86.46 98.81	98	65	86.	83	87	.45	87	20	87	.39	1000	.58	1800	.76	76 87.	.95	88.5	13		32
12/2/2/2	122 147 171 196	72 26 81 35	122. 147. 172. 196.	288 8 8 8 8 8	123. 147. 172. 197.	25 25 20 20 20	123 148 172 197	9222	123 148 173 198	78 54 29 05	124. 148. 173. 198.	005	124 149 174 198	31 18 04 90	124 149 174 199	.58 1.49 1.41 1.33	45 49 74 99	27000	125 150 175 200	13.13	4 125 .11 125 .38 1 1 150 .13 150 .45 1 8 175 .15 175 .53 1 5 200 .18 200 .60 2	.533	125.64 150.77 175.90 201.03	64 77 90 90 93	125 151 151 176 201	91 27 27 45		
%% 1 % M	245. 245. 269. 294.	989 53 53	245. 245. 270. 295.	37 97 57 16	221. 246. 271. 295.	85 50 15 80 80	222.33 247.03 271.73 296.44	333	222 247 272 297	81 56 32 08	223. 248. 272. 297.	28 00 71	223. 248. 273. 298.	76 63 49 35	224.24 249.16 274.07 298.99	24 16 07 99	224. 249. 274. 299.	6667	225. 250. 275. 300.	22 22 24 26	225. 250. 275. 300.		226. 251. 276. 301.	28247	226 251 276 302		227 252 277 277 302	
12/8/8	343. 368. 392.	07 61 16 70	319. 344. 368. 393.	76 36 95 55	320. 345. 369. 394.	45 10 10 40	321.14 345.84 370.55 395.25	44 25 25 25	321. 346. 371. 396.	883 59 34 10	322. 347. 372. 396.	52 333 14 95	323 348 372 397	21 08 94 80	323 348. 373.	532	324. 349. 374. 399.	50 50 50 50	325. 350. 375. 400.	333	325 351 376 401	98 05 13 20	326. 351. 376. 402.	67	327 352 377 402		353 353 403	
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25		14 23 31 40 7	639. 688. 737. 787.	52 6 71 6 91 7 10 7	640. 690. 739. 788.	8027	642. 691. 741. 790.	28 69 69 50 7	643. 693. 742. 792.	66 69 69 7 20 7	645. (694. 744. 7793. 9	04 66 66 90 7	646. 696. 745. 795.	443 115 60 7	.43 647.81 6 .15 697.64 6 .88 747.47 7 .60 797.30 7	81 64 47 30	49 49 99 99	113	650. 700. 750. 800.	57 61 66 70	651 702 752 802	95 10 25 40	653. 703. 753. 804.	33 59 84 10	654. 705. 755. 805.	128	656 706 757 807	
22%	883.	58 8	836.2	29 8 49 8	838.	10 8 40 8	839.	918	841.	71 8 23 8	843.8	52 8	845.	338	847.13	13 8 96 8	848.	948	850.	74	852.	55 20	.55 854.36 8 70 904 61	368	856.16	16	857	.97

1	1	1	3	-3			-	1		-		WIDTH,	OTI		SC	INCHES											
I hickness, Inches	119	-	1191/4	-	1191/2		119 3/4		120	-	1201/4		1201/2	_	120 34	1 -	121	12	121 1/4		121 1/2	121	1 3/4		122	122 1/4	
2827	88.5	51 8	88.69 101.36		88.88	_	89.06		89.25	5 8 0 10	89.44 102.21	1	89.62	3 102.	9.81		89.99 102.85		90.18	3 90.	3.28	90.	.49	90.	3.70	103	
12/2/2/2	126.4 151.7 177.0 202.3	44 73 01 30 20	126.70 152.04 177.38 202.73	0 126 4 152 8 177 3 203		97 12 36 15 76 17 15 20	127.2 152.6 178.1 203.5	23 12 68 15 13 17 58 20	127.5 153.0 178.5 204.0	50 12 50 15 50 17 00 20	127.77 153.32 178.87 204.43	7 128 2 153 7 179 3 204	8.03 3.64 9.24 4.85	3 12 4 15 5 20	128.30 153.96 179.62 205.28	0 128. 6 154. 2 179. 8 205.	8.56 4.28 9.99 5.70	\$ 128 \$ 154 \$ 180 \$ 206	8.83 4.59 0.36 6.13	3 129 154 5 180 3 206	9.09 4.91 0.73 6.55	129 155 181 206	.36 .23 .10 .98	129. 155. 181. 207.	.63 .55 .48	129 155 181 207	
120 H	257.5 252.8 278.1 303.4	45.22 88.22 45.22 85.22	228.07 253.41 278.75 304.09	1 2 2 2 2 2 2 3 2 3 2 3 3 0 3 0	228.5 253.9 279.3 304.7	23 33 22 33 23 33 25 33 32 32 32 32 32 32 32 32 32 32 32 32	229.0 254.4 279.9 305.3	02 25 47 25 92 28 36 36	229.5 255.0 280.5 306.0	322 000 000 000 000 000 000 000 000 000	229.9 255.5 281.0 306.6	98 230 53 256 08 281 64 307		46 230. 06 256. 67 282. 28 307.		93 231 59 257 25 282 91 308	7.13 2.84 8.55	231 3 257 4 283 5 309	1.89 7.66 3.42 9.19	232 258 2284 309	8.19 4.01 9.83	232. 258. 284. 3310.	3.72 3.72 4.59 0.46	233 259 285 311	3.33 9.25 5.18 1.10	233 259 285 311	
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	657.4 708.0 758.6 809.2	48 6 05 7 63 7 20 8	658.8 709.5 760.2 810.9	86 66 54 71 22 76 90 81	660.2 711.0 761.8 812.6	24 03 7 8 60 8	661.6 712.5 763.4 814.3	62 51 7 41 30 8	663.0 714.0 765.0 816.0	0000	664.3 715.4 766.5 817.7	38 66 49 71 59 76 70 81	665.7 716.9 768.1 819.4	76 66 98 71 19 76 40 82	667.1 718.4 769.7 821.1	14 66 46 71 78 77 10 82	668.5 719.9 771.3 822.8	53 66 95 72 38 77 80 82	669.9 721.4 772.9 824.5	91 671 44 722 97 774 50 826	671.29 722.93 774.56 826.20	9 672. 3 724. 6 776. 0 827.	2.67 4.41 5.16 7.90	674 725 777 829	1.05 5.90 7.75 9.60	675 727 779 831	
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WIDTH, INCHES	124 124 1/4 124 1/2 124 3/4 125 125 1/4	92.23 92.41 92.60 92.78 92.97 93.15 93 105.40 105.61 105.83 106.04 106.25 106.46 106	131. 75 132. 02 132. 28 132. 55 132. 81 133 158. 10158. 91 158. 10158. 42 158. 74 159. 06 159. 38 159 184. 45 184. 82 185. 19 185. 57 185. 94 186. 210. 80 211. 23 21. 65 212. 08 212. 50 212.	90000	342. 55 343. 24 343. 93 344. 62 345. 31 346. 09 368. 90 389. 64 370. 39 371. 13 371. 88 372. 62 395. 25 380. 05 396. 3879. 64 3897. 64 388. 44 389. 23 421. 60 422. 45 423. 30 424. 15 425. 00 423. 85	78.13 479. 31.25 532. 84.38 585.	10 686.48 687.86 689.24 690.63 692.80 739.29 740.78 742.26 743.75 745.26 7792.09 793.69 795.28 7795.88 7795.	90 897.71 899.51 901.32 903.13 904. 60 950.51 952.43 954.34 956.25 958.
WI	123 1/2 123 3/4	91.85 92.04 104.98 105.19	131 . 22 131 . 48 157 . 46 157 . 78 183 . 71 184 . 08 209 . 95 210 . 38	236.19 236.67 262.44 262.97 288.68 289.27 314.93 315.56	341.17 341.86 34 367.41 368.16 36 393.66 394.45 39 419.90 420.75 42	472.39 473.34 47 524.88 525.94 52 577.36 578.53 57 629.85 631.13 63	682.34 683.72 685. 734.83 736.31 737. 787.31 788.91 790. 839.80 841.50 843.	892.29 894.09 895. 944.78 946.69 948.
	123 123 1/4	48 91.67 55 104.76	130.69 130.95 156.83 157.14 182.96 183.33 209.10 209.53	235.24 235.72 261.38 261.91 287.51 288.10 313.65 314.29	339.79 340.48 365.93 366.67 392.06 392.86 418.20 419.05	18 471.43 15 523.81 13 576.19 10 628.58	679.58 680.96 6 731.85 733.34 7 784.13 785.72 7 836.40 838.10 8	888.68 890.48 890.95 940.95 942.86
	1221/2 1223/4	.13 104.34	.16 130.42 .19 156.51 .22 182.59 .25 208.68	. 28 234 . 76 .31 260 .84 .34 286 .93 .38 313 .01	338.41 339.10 3 364.44 365.18 3 390.47 391.27 3 416.50 417.35 4	468.56 469.52 470.4 520.63 521.69 522.7 572.69 573.86 575.0 624.75 626.03 627.3	.81 678.19 .88 730.36 .94 782.53 .00 834.70	885.06 886.87 88 937.13 939.04 94

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	129	95.94 109.65	137. 164. 191. 219.	246.71 274.13 301.54 328.95	356. 383. 411. 438.	493. 548. 603. 657.	712. 767. 822. 877.	932
1	4	.44	80 116 132 52 88	23 59 95 31	67 03 39 75	47 119 91 63	34 06 78 50	94
	128 3/4	95.7	136.8 164. 191. 218.	246. 273. 300. 328.	355. 383. 410.	492.47 547.19 601.91 656.63	7111. 766. 820. 875.	.03 984.
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INCHES	127	95.	135. 162. 190. 217.	244 271 298 325	352 380 407 434	488. 542. 597. 651.	705. 760. 814. 868.	922
	77	80 80	750	84 94 03 13	22 31 41 50	888 069 25	63 81 00	.38
WIDIH,	127 1/2	94.	135.47 162.56 189.66 216.75	243. 270. 298. 325.	352. 379. 406.	487. 541. 596. 650.	704. 758. 812. 867.	.38 921. .46 975.
3	-		24 28 33 33 33	37 45 49	53 61 65	73 89 98 98	06 14 22 30	.46
	127 1/4	94.64 108.16	135. 162. 189. 216.	243. 270. 297. 324.	351 378 405 432	486. 540. 594. 648.	703. 757. 811. 865.	919.
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	127	94.46	134. 161. 188. 215.	242. 269. 296. 323.	350 377 404 431	485. 539. 593. 647.	701. 755. 809. 863.	917.
	3/4	27	67 61 54 48	228	15 08 02 95	82 69 56 43	. 29 . 03 . 90	.64
	126	94.	134 161 188 188 215	242. 269. 296. 323.	350 377 404 430	484. 538. 592. 646.	700. 754. 808. 861.	.96 915.
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	1261/2	94.	134. 161. 188. 215.	241. 268. 295. 322.	349. 376. 403. 430.	483.86 537.63 591.39 645.15	698. 752. 806. 860.	913
	7	90	14 97 80 63	28 11 94	242	91 225 88 88	53	.16
	1261/4	93.	134. 160. 187. 214.	241 268 295 321	348. 375. 402. 429.	482 536 590 643	697 751 804 858	912.
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	SS.	- 111	1	-u-172	11111		1745	
	Fhickness Inches	7874	12/2/2/2	12% 14%/4	13,27,8	70/4%/2	11 1 1 C	22 178/4

Thickness 129 ½ 129 ¾ 130 ¼ 130 ½ 130 ¾ 131 ¼ 131 ¼ 131 ¼ 131 ¾ 132 132 ¼ 13												W	WIDTH,	INCHES	ES						
96 32 96 50 96 89 88 97 97 4 97 6 97 8 98 <th>Thick</th> <th>kness,</th> <th>129 1/</th> <th></th> <th>29 3/</th> <th></th> <th>30</th> <th>13</th> <th>01/4</th> <th>-</th> <th>01/2</th> <th>130 34</th> <th>B - 1 -</th> <th>1311/4</th> <th>131</th> <th>131 3/4</th> <th>132</th> <th>132 1/4</th> <th>132 1/2</th> <th>132 3%</th> <th></th>	Thick	kness,	129 1/		29 3/		30	13	01/4	-	01/2	130 34	B - 1 -	1311/4	131	131 3/4	132	132 1/4	132 1/2	132 3%	
137 59 137 86 138 .13 138 .39 138 .66 138 .9 139 .2 139 .5 139 .7 140 .0 140 .3 140 .5 142 63 195 .6 195 .6 196 .7 168 .0 168 .3 168 .6 195 .6 195 .6 196 .7 168 .0 168 .3 168 .6 195 .6 195 .6 196 .1 195 .4 196 .7 168 .0 196 .1 195 .2 195 .6 196 .1	2,24	18/4		-								97	97	97.	97.	98.	98.	98	98.5	98.7	
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JONES & LAUGHLIN STEEL COMPANY

Weights of Circular Steel Plates

Diameter THICKNESS, INCHES											
Inches	1/8	3/16	1/4	5/16	3/8	7/16	1/2	9/16	5/8	11/16	3/4
16	7	11	14	18	21	25	28	32	36	39	42
17	8	12	16	20	24	28	32	36	40	44	48
18	9	14	18	23	27	32	36	41	46	50	54
19	10	15	20	25	30	35	40	45	50	55	60
20	11	17	22	28	33	39	45	50	56	61	67
21	12	19	25	31	37	43	50	55	61	68	74
22	14	20	27	34	40	47	54	61	67	74	81
23	15	22	30	37	44	52	59	66	74	81	88
24	16	24	32	40	48	56	64	72	80	88	96
25	18	26	35	44	52	61	70	78	87	96	104
26	19	28	38	47	57	66	75	85	94	103	113
27	20	31	41	51	61	71	81	91	101	112	122
28	22	33	44	55	66	76	87	98	109	120	131
29	24	35	47	59	70	82	94	105	117	129	140
30	25	38	50	63	75	88	100	113	125	138	150
3000 2	07	100	F1	67	80	94	107	120	134	147	160
31	27	40	54	71	86	100	114	128	142	157	171
32	29	43		76	91	106	121	136	152	167	182
33	32	ALC:	411-	81	97	113	129	145	161	177	193
34 35	34			85	102	119	136	153	170	187	204
99	94	01	1 7		1000	1400	-	10	100	100	916
36	36	54		90	108	126	144	162	180	198	216
37	38			95	114	133	152	171	190		229
38	40	1 3	Section 1			141	161	181	201		
39	42	1			100	148		der .	212		
40	45	67	89	111	134	156	178	200	223	245	207

JONES & LAUGHLIN STEEL COMPANY

Weights of Circular Steel Plates Continued

Diameter	r	THICKNESS, INCHES											
Inches	1/8	3/16	1/4	5/16	3/8	7/16	1/2	9/16	5/8	11/10	6 34		
41	47	70	94	117	140	164	1 187	7 210	234	4 257	7 281		
42	49	74	98	123	147	172	2 196	3 221	248	5 270	117		
43	52	77	103	129	154	180	206	3 232	2 257	7 283			
. 44	54	81	108	135	162	189	215	242	269	296	323		
45	56	85	113	141	169	197	225	254	282	310	338		
46	59	88	118	147	177	206	236	265	294	324	353		
47	62	92	123	154	184	215	246	277	307	338			
48	64	96	128	160	192	224	256	288	320	353	385		
49	67	100	134	167	200	234	267	301	334	367	401		
50	70	104	139	174	209	243	278	313	348	383	417		
51	73	109	145	181	217	253	289	326	362	398	434		
52	75	113	150	188	226	263	301	339	376	414	451		
53 ·	78	117	156	195	234	274	313	352	391	430	469		
54	81	122	162	203	243	284	325	365	406	446	487		
55	84	126	168	210	252	295	337	379	421	463	505		
56	88	131	175	218	262	305	349	393	436	480	524		
57	91	136	181	226	271	317	362	407	452	497	542		
58	91	141	187	234	281	328	375	421	468	515	562		
59	4.13/1	145	194	242	291	339	388	436	484	533	581		
60	101	150	201	251	301	351	401	451	501	551	601		
ALC: NO	104	155	207	259	311	363	414	466	518	570	621		
100	107	160	214	268	321	375	428	482	535	588	642		
1000 1000	-	166	221	276	332	387	442	497	552	608	663		
HE I CH	-	- 14		285	342	399	456	513	570	627	684		
65	118	176	235	294	353	412	470	529	588	647	705		

Weights of Circular Steel Plates Continued

Diameter				13	тн	ICKN	IESS,	INC	HES			,	
Inches	1/4	5/16	3/8	7/16	1/2	916	5/8	11/16	3/4	13/16	7/8	15/16	1
66	243	303	364	424	485	546	606	667	727	757	848	909	
67	250	312	375	437	500	562	625	687	750	812	874		1000
68	258	322	386	450	515	579	643	708	772	836	900	00.0	1030
69	265	331	398	464	530	596	662	729	795	866	928		1060
70	273	341	409	477	546	614	682	750	818	886	954	1023	1092
71 -	281	351	421	491	561	631	702	772	842	912	982	1052	1122
72			433	505	577	649	721	794	866				1154
73		1	445	519	593	667	741	816	890			1	1186
74			1457	533	610	686	762	838					1220
75	313	339	1470	548	626	705	783	861	939	1018	1096	31172	1252
70	200	100	2482	563	643	723	804	884	964	1045	112	1205	1286
76 77			$\frac{2402}{3495}$. 0 20	1		907	990	1072	115	1237	1320
78	100		3 508		-		847	931	1016	1100	118	1270	1354
79	100		4 521		. 70.	782	868	955	1042	1129	121	6 130	21389
80	10-	-	5 534		712	802	891	980	1069	1158	124	7 133	6 1425
				000	H0(822	019	1004	100	1187	127	8136	9 1460
81	100	0 -0	7 548										3 1497
82	10.	-	8 56			1011							8 1533
83			9 57	0									2 1571
84			03 60	00.		-							9 1608
85	40	1200	00				1			1	1	1	
86	41	25	1561										3 1646
87	1		27 63										6 1724
88			39 64										16 1724
89	1	1	51 66										53 1763
90	4.	51 5	64 67	6 78	9 90	2 101	4 112	7 124	0 135	2 140	00 10	1/108	00 1803

Weights of Circular Steel Plates Concluded

Diameter					THIC	KNES	S. IN	СНЕ	s .		-	
Inches	5/16	3/8	716	1/2	9/16	1 5/8	11/16	3/4	13/16	7/8	15/16	1
91	576	691	807	922		1152				-		
92	589	707	824	942	1060	1178	1295	1413	1531	1648	1766	1884
93	602	722	842	963	1083	1203	1324	1444	1564	1684	1805	1925
94	615	738	861	984	1106	1229	1352	1475	1598	1721	1844	1967
95	628	754	879	1005	1130	1256	1381	1507	1632	1758	1883	2009
96	641	769	897	1025	1154	1282	1410	1538	666	1795	19232	2051
97	654	785	916	1047	1178	13091	440	1570 1	701	1832	1963	2094
98	668	801	935	1069	1202	1336 1	469	603 1	737 1	8702	2004	2137
100	682 695	818	954 1	.091	1227	1363 1	500 1	636 1	772 1	908	2045	2181
			1.			1391						
400		851	993 1	135 1	277	14191	561 1	703 1	844 1	9862	1282	270
400	724 738	868 1	013 1	158 1	302 1	447 1.	5921	736 1	881 2	0262	1712	315
101	752	903 1	053 1	180 1	328 1	476 16	323 1	771 19	918 20	066 2	213 2	361
40-	767	920 10	073 12	$\frac{205}{227}$ 1:	380 1	504 16 533 16	355 18	805 19	056 2	106 2	257 2	407
106					- 1			1	100			
400	781 9	938 10	15 15	250 14	107 1	563 17	19 18	375 20	3221	18823	344 25	500
100	311 9	073 11	36 12	008 1	160 1	592 17	52 19	011 20	70 22	229 23	389 25	548
109 8	26	992 11	57 13	22 14	187 16	622 17 652 18	18 10	94721	48 22	271 24	33 25	596
110 8	41 10	010 11	78 13	46 15	515 16	383 18	5120	2021	88 23	56 25	24 26	044
112 8	72 10	47 12	21 13	96 15	70 17	714 18 745 19	1920	04 22	28 24	0025	70 27	42
113 88	88 10	65 12	43 143	20 15	98 17	76 19	53 213	31 230	0824	43 26 86 26	62 20	91
114 90	04 108	85 126	36 144	16 16	27 18	08 198	39217	70 235	50 253	3127	1220	3
115 92	20 110	04 128	88 147	71 168	56 18	39 202	24 220	08 239	2 257	5 275	59 294	13
				-	1					1		

Weights and Areas of Square and Round Bars and Circumferences of Round Bars

Chedimerences of results and									
Ci. I	Weight	Weight	Area	Area	Circumference				
Side or Diameter,	of Bar	of O Bar	of Bar	of O Bar	of O Bar				
Inches				Square Inches	Inches				
	per Foot	per Foot	Square Inches	Square inches	Inches				
1/16 5/64	.013	.010	. 0039	.0031	.1964				
3/32	.030	. 023	. 0088	. 0069	. 2945				
7/64	. 041	. 032	.0120	. 0094	.3436				
1/8	. 053	.042	. 0156	. 0123	.3927				
9/64	. 067	.053	.0198	. 0155	.4418				
5/32	. 083	.065	.0244	.0192	.4908				
11/64	.100	.079	. 0295	. 0232	.5400				
3/16	.120	.094	. 0352	. 0276	.5891				
13/64	.140	.110	.0413	. 0324	.6381				
7/32	.163	.128	. 0479	.0376	.6872				
15,64 1,4	.187	.147	. 0549	.0431	.7363				
1/4	.212	.167	. 0625	. 0491	.7854				
17/64	.240	.188	. 0706	. 0554	.8345				
9/32	.269	.211	. 0791	.0621	.8836				
19/64	.300	.235	. 0881	.0692	.9327				
5/16 .	.332	.261	. 0977	. 0767	.9818				
21/64	.366	.288	.1077	. 0846	1.0308				
11/32	402	.316	.1182	. 0928	1.0799				
23/64	.439	.345	1292	.1014	1.1290				
3/8	.478	.376	.1406	.1104	1.1781				
	0.30	.407	.1526	.1198	1.2272				
25/64	.519	.407	1650	1296	1.2763				
13/32		475	1780	1398	1.3254				
27/64	.605		.1914	.1503	1.3745				
7/16	.651	.511	. 1914	10000	0.0				
29/64	.698	.548	.2053	.1613	1.4235				
15/32	.747	.587	.2197	.1726	1.4726				
31_{64}^{32}	.798	.627	2346	.1843	1.5217				
1/2	.850	.668	,2500	.1963	1.5708				
					1.6199				
33/64	.904	.710	.2659	.2088					
17/32	.960	.754	.2822	.2217	1.6690				
35/64	1.017	.799	.2991	.2349	1.7181				
9/16	1.076	.845	.3164	. 2485	1.7671				
	1		IF	1	11				

Constitution of the	Weight	Weight	Area	Area	Circumference
Side or Diameter.	of Bar	of O Bar	of Bar	of O Bar	of O Bar
Inches	per Foot	per Foot	Square Inches	Square Inches	Inches
37/64	1.136	.893	.3342	. 2625	1.8162
19/32	1.199	.941	.3525	.2769	1.8653
3964	1.263	.992	.3713	.2916	1.9144
5/8	1.328	1.043	.3906	.3068	1.9635
41.7	1 205	1 000	4104	2000	0.0100
$\frac{41}{64}$ $\frac{21}{32}$	1.395 1.464	1.096 1.150	.4104	.3223 .3382	2.0126 2.0617
43 64	1.535	1.205	.4514	.3545	2.1108
11/16	1.607	1.262	.4727	.3712	2.1598
1111	11000	-1-11		1000	
45 64	1.681	1.320	.4944	.3883	2.2089
23/32	1.756	1.379	.5166	.4057	2.2580
47/64 3/4	1.834 1.913	$\begin{array}{c c} 1.440 \\ 1.502 \end{array}$. 5393 . 5625	.4236	$2.3071 \\ 2.3562$
/4	1.515	1.002	.0020	.1110	2.0002
4964	1.993	1.565	. 5862	.4604	2.4053
25/32	2.075	1.630	.6103	.4794	2.4544
51 64	2.159	1.696	. 6350	.4987	2.5035
13/16	2.245	1.763	. 6602	.5185	2.5525
53/64	2,332	1.831	.6858	.5386	2.6016
27/32	2.420	1.901	.7119	.5591	2.6507
55/64	2.511	1.972	.7385	.5800	2.6998
7/8	2.603	2.044	.7656	.6013	2.7489
57/64	2.697	2.118	.7932	.6230	2.7980
29/32	2.792	2.118	. 8213	.6450	2.7980
5964	2.889	2.270	.8498	.6675	2.8962
15/16	2.988	2.347	.8789	.6903	2.9453
61/	2 000	0.400	0004	7105	0.0010
61/64 31/32	$\frac{3.089}{3.191}$	$\frac{2.426}{2.506}$.9084	.7135 .7371	2.9943
63,64	3.294	2.587	.9385	.7610	3.0434 3.0925
1	3.400	2.670	1.0000	. 7854	3.1416
1000 L	100	0			0,1110

Side or Diameter, Inches of ☐ Bar per Foot of ☐ Bar per Foot of ☐ Bar Square Inches of ☐ Bar Square Inch	. 2398 . 3379 . 4361
Side or Diameter, Inches of Bar per Foot of Bar per Foot of Bar Square Inches of Square Inches	. 2398 . 3379 . 4361
Tinches per Foot per Foot Square Inches Square Inches I	. 2398 . 3379 . 4361
1½2 3.616 2.840 1.0635 .8353 3 ½6 3.838 3.014 1.1289 .8866 3 ¾2 4.067 3.194 1.1963 .9396 3	.2398 .3379 .4361
1,32 1,6 3,838 3,014 1,1289 3,8866 3,4 4,067 3,194 1,1963 3,9396 3	.3379 .4361
16 3.838 3.014 1.1289 .8866 3 32 4.067 3.194 1.1963 .9396 3	.3379 .4361
3/ ₃₂ 4.067 3.194 1.1963 .9396 3	. 4361
3/ ₃₂ 4.067 3.194 1.1963 .9396 3	
	. 5343
1/8 4.303 3.379 1.2656 .9940 3	
54 4 545 3 570 1 3369 1 0500 3	.6325
732	.7306
716	. 8288
732	.9270
5.312 4.173 1.5625 1.2272 3	.9410
9/2 5.581 4.384 1.6416 1.2893 4	.0252
732 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	.1233
916	.2215
32 0.100 1.000 1.4040 4	.3197
3/8 6.428 5.049 1.8906 1.4849 4	.0201
13/2 6.724 5.281 1.9775 1.5532 4	.4179
7.026 5.518 2.0664 1.6230 4	.5160
15/32 7.334 5.761 2.1572 1.6943 4	.6142
7.650 6.008 2.2500 1.7671 4	.7124
	0106
732	.8106
76	. 9087
19/82 8.636 6.783 2.5400 1.9949 5	. 0069
5/8 8.978 7.051 2.6406 2.0739 5	. 1051
9.327 7.325 2.7481 2.1545 5	. 2033
2/39 9.521 1.525 2.1152	3014
9.002	3.3996
7/32	5.4978
$\frac{37}{4}$ 10.41 8.178 3.0625 2.4053 5	. 10.0
25/2 10.79 8.473 3.1728 2.4920 5	5.5960
13% 11 17 8 773 3.2852 2.5802 5	5.6941
27/ ₃₂ 11.56 9.078 3.3994 2.6699 5	5.7923
	5.8905
70	0005
2730 12.00	5.9887
15% 12.76 10.02 3.7539 2.9483 6	3.0868
31/2 13.18 10.35 3.8760 3.0442 6	3.1850
2 32 13.60 10.68 4.0000 3.1416	3.2832

Side or Diameter, Inches	Weight of Bar per Foot	Weight of O Bar per Foot	Area Of Bar Square Inches	Area of O Bar Square Inches	Circumference of O Bar Inches
2^{1}_{16} 1_{8} 3_{16} 1_{4}	14.46	11.36	4.2539	3.3410	6.4795
	15.35	12.06	4.5156	3.5466	6.6759
	16.27	12.78	4.7852	3.7583	6.8722
	17.22	13.52	5.0625	3.9761	7.0686
5/16 3/8 7/16	18.19 19.18 20.20 21.25	14.28 15.07 15.86 16.69	5.3477 5.6406 5.9414 6.2500	4.2000 4.4301 4.6664 4.9087	7.2649 7.4613 7.6576 7.8540
9/16	22.33	17.53	6.5664	5.1572	8.0503
5/8	23.43	18.40	6.8906	5.4119	8.2467
11/16	24.56	19.29	7.2227	5.6727	8.4430
3/4	25.71	20.20	7.5625	5.9396	8.6394
13/ ₁₆ 7/ ₈ 15/ ₁₆ 3	26.90	21.12	7.9102	6.2126	8.8357
	28.10	22.07	8.2656	6.4918	9.0321
	29.34	23.04	8.6289	6.7771	9.2284
	30.60	24.03	9.0000	7.0686	9.4248
1/16	31.89	25.04	9.3789	7.3662	9.6211
1/8	33.20	26.08	9.7656	7.6699	9.8175
8/16	34.55	27.13	10.160	7.9798	10.014
1/4	35.92	28.20	10.563	8.2958	10.210
5/16	37.31	29.30	10.973	8.6179	10.407
3/8	38.73	30.42	11.391	8.9462	10.603
7/16	40.18	31.56	11.816	9.2806	10.799
1/2	41.65	32.71	12.250	9.6211	10.996
9/16	43.14	33.90	12.691	9.9678	11.192
5/8	44.68	35.09	13.141	10.321	11.388
11/16	46.24	36.31	13.598	10.680	11.585
3/4	47.82	37.56	14.063	11.045	11.781
13/16	49.42	38.81	14.535	11.416	11.977
7/8	51.05	40.10	15.016	11.793	12.174
15/16	52.71	41.40	15.504	12.177	12.370
4	54.40	42.73	16.000	12.566	12.566

			7		
	Weight	Weight	Area	Area	Circumference
Side or	of Bar	of O Bar	of Bar	of O Bar	of O Bar
Diameter, Inches			-	Square Inches	Inches
Inches	per Foot	per Foot	Square Inches	Square Inches	Thenes
41/16	56,11	44.07	16.504	12.962	12.763
1/8	57.85	45.44	17.016	13.364	12.959
3/16	59.62	46.83	17.535	13.772	13.155
1/4	61.41	48.24	18,063	14.186	13.352
/4	01.11				
5/16	63.23	49.66	18.598	14.607	13.548
3/8	65.08	51.11	19.141	15.033	13.744
7/16	66.95	52.58	19.691	15.466	13.941
1/2	68.85	54.07	20.250	15.904	14,137
7 2	Un			10.016	14 004
9/16	70.78	55.59	20.816	16.349	14.334
5/8 11/ ₁₆	72.73	57.12	21.391	16.800	14.530
11/16	74.70	58.67	21.973	17.257	14.726
3/4	76.71	60.25	22.563	17.721	14.923
				10 100	15 110
13/16	78.74	61.84	23.160	18.190	15.119
7/8	80.81	63.46	23.766	18.665	15.315
15/16	82.89	65.10	24.379	19.147	15.512
5	85.00	66.76	25.000	19.635	15.708
		20 54	07 000	20.129	15.904
1/16	87.14	68.44	25.629	20.129	16.101
1/8	89.30	70.14	26.266	21.135	16.297
3/16	91.49	71.86	26.910	21.133	16.493
1/4	93.72	73.60	27.563	21.040	10.430
*/	05.00	75.37	28.223	22.166	16.690
5/16	95.96 98.23	77.15	28.891	22.691	16.886
3/8	100.5	78.93	29.566	23.221	17.082
7/16	100.3	80.77	30.250	23.758	17.279
1/2	102.0	30.11	30.200	20.100	
9/-	105.2	82.62	30.941	24.301	17.475
9/16 5/8	107.6	84.49	31.641	24.850	17.671
11/8	110.0	86.38	32.348	25.406	17.868
3/4	112.4	88.29	33.063	25.967	18.064
74	112.1	00.20	00,000		1
13/16	114.9	90.22	33.785	26.535	18.261
7/6	117.4	92.17	34.516	27.109	18.457
7/8 15/16	119.9	94.14	35.254	27.688	18.653
6	122.4	96.14	36.000	28.274	18.850
0					

Square and Round Bars Concluded

			1		
Side or	Weight	Weight	Area	Area	Circumference
Diameter,	of Bar	of O Bar	of Bar	of O Bar	of O Bar
Inches	per Foot	per Foot	Square Inches	Square Inches	
	per 1 oot	per root	Square Inches	square Inches	Inches
61/16	125.0	98.14	36.754	28.866	19.046
1/8	127.6	100.2	37.516	29.465	19.242
3/16	130.2	102.2	38.285	30.069	19.439
1/4	132.8	104.3	39.063	30.680	19.635
, ,			30.300	.00.000	10.000
5/16	135.5	106.4	39.848	31.296	19.831
3/8	138.2	108.5	40.641	31.919	20.028
7/6	140.9	110.7	41.441	32.548	20.023
1/2	143.6	112.8	42.250	33.183	20.420
/ 4	110.0	112.0	12,200	00,100	20.420
9/16	146.5	114.9	43.066	33.824	20.617
5/8	149.2	117.2	43.891	34.472	20.813
11/16	152.1	119.4	44.723	35.125	21,009
3/4	154.9	121.7	45.563	35.785	21.206
/4	101.0	121.1	40.000	00.100	21.200
13/16	157.8	123.9	46.410	36.450	21,402
7/8	160.8	126.2	47.266	37.122	21.598
15/16	163.6	128.5	48.129	37.800	21.795
7	166.6	130.9	49.000	38.485	
	100.0	100.0	43.000	00,400	21.991
1/16	169.6	133.2	49.879	39.175	22.187
1/8	172.6	135.6	50.766	39.871	22.384
3/16	175.6	137.9	51.660	40.574	22.580
1/4	178.7	140.4	52.563	41.282	22.777
74		110.1	02,000	11.202	22.111
5/16	181.8	142.8	53.473	41.997	22.973
3/8	184.9	145.3	54.391	42.718	23.169
7/16	188.1	147.7	55.316	43.445	23.366
1/2	191.3	150.2	56.250	44.179	23.562
12	101.0	100.2	30.230	44.179	20.002
9/16	194.4	152.7	57.191	44.918	23.758
5/8	197.7	155.2	58.141	45.664	23.955
11/16	200.9	157.8	59.098	46.415	24.151
3/4	204.2	160.3	60.063	47.173	24.131
/4		200.0	00.000	11.113	24.047
13/16	207.6	163.0	61.035	47.937	24.544
7/6	210.8	165.6	62.016	48.707	24.740
15/16	214.2	168.2	63.004	49.483	24.740
8	217.6	171.0	64.000	50.265	25.133
		-,1.0	31.000	00.200	20.100

Areas, Circumferences and Weights per Foot of Round Bars with Diameters in Decimals

DIAMETER	R, INCHES	Area.	Circumference	Weight per Foot.
Decimal	Nominal Fraction	Square Inches	Inches	Pounds
.178	3/16 —	. 0249	. 5592	.085
.220 .223	7/ ₃₂ + 7/ ₃₂ +	.0380	.6912 .7006	.129 .133
.227 .230 .231 .236 .238	$^{15}_{64} - $ $^{15}_{64} - $ $^{15}_{64} - $ $^{15}_{64} + $ $^{15}_{64} + $.0405 .0415 .0418 .0437 .0445	.7131 .7226 .7257 .7414 .7477	.138 .141 .142 .149 .152
.240 .242 .243 .244 .245 .247 .248 .250 .255 .258	14 - 14 - 14 - 14 - 14 - 14 - 14 + 14 +	. 0452 .0460 .0464 .0467 .0471 .0479 .0483 .0491 .0511 .0523	.7540 .7603 .7634 .7665 .7697 .7760 .7791 .7854 .8011 .8105	. 154 . 157 . 158 . 159 . 160 . 163 . 164 . 167 . 174 . 178
.262	17 ₆₄ — 17 ₆₄ —	. 0539 . 0543	.8231 .8262	. 183 . 185
.275 .280 .281 .286	932 — 932 — 932 — 932 932 +	. 0594 . 0616 . 0620 . 0642	. 8639 . 8796 . 8828 . 8985	.202 .209 .211 .218
.289 .290 .292 .295 .297 .298 .300 .302	$\begin{array}{c} 19_{64} - \\ 19_{64} - \\ 19_{64} - \\ 19_{64} - \\ 19_{64} - \\ 19_{64} + \\ 19_{64} + \\ 19_{64} + \\ 19_{64} + \\ 19_{64} + \\ \end{array}$. 0656 . 0660 . 0669 . 0683 . 0693 . 0697 . 0707 . 0716	.9079 .9111 .9173 .9268 .9330 .9362 .9425 .9488 .9550	.223 .224 .227 .232 .236 .238 .240 .243 .246

Round Bars Diameters in Decimals—Continued

DIAMETE	R, INCHES		C:	Weight
Decimal	Nominal Fraction	Area, Square Inches	Circumference Inches	per Foot, Pounds
.305	5/16	.0731	.9582	.248
.306	5/16 —	.0735	.9613	.250
.307	5/16 — 5/16 —	.0745	.9645	.252 $.253$
.310	5/16 —	.0754	.9739	256
.312	5/16	. 0764	.9802	. 260
.314	5/16+	. 0774	. 9865	. 263
.315	5/16+	. 0779	.9896	. 265
,323	21/64 —	. 0819	1.0147	.278
. 324	21/64 —	. 0824	1.0179	.280
.330	21/64+	. 0855	1.0367	.291
. 335	11/32 —	. 0881	1.0524	.299
.343	11/32	. 0924	1.0776	.314
.344	11/32	. 0929	1.0807	.316
.345	11 32+	.0935	1.0838	.318
.355	23/64 —	.0990	1.1153	.337
.356	20/84	. 0995	1.1184	.338
.360	23/64	.1018	1.1310	.346
.361	²³ / ₆₄ + ²³ / ₆₄ +	1023	1.1341 1.1372	.348
.364	23/64+	1029	1.1372	$.350 \\ .354$
.365	23/64+	1046	1.1467	.356
.367	23/64+	. 1058	1.1530	.360
.368	3/6_	.1064	1.1561	.362
.370	3/8-	1075	1.1624	.365
.372	3/8— 3/8— 3/8— 3/8—	.1087	1.1687	.369
.373	3/8-	. 1093	1.1718	.372
.374	3/8-	.1098	1.1749 1.1781	.373 .376
1000		.1101	1.1701	.570
.390	25/64	. 1194	1.2252	.406
.420	27/64 —	. 1385	1.3195	.471
.424	27/64+	. 1412	1.3320	.480
.427	27/64+	.1432	1.3415	.487

Round Bars Diameters in Decimals—Concluded

		0.5 11 0.11 0.1			
DIAMETEI		Area,	Circumference	Weight per Foot,	
Decimal	Nominal Fraction	Square Inches	Inches	Pounds	
.430	7/16 — 7/16 —	.1452	1.3509 1.3540	.494 .496	
432	7/16 —	.1466	1.3572	.498	
.436	7/16 —	.1493	1.3697 1.3739	.508	
.437	7/16 7/16+	.1534	1.3886	.522	
. 446	29/64 —	.1562	1.4012	. 531	
.470	15/32+	. 1735	1.4765	. 590	
. 486	31/64+	. 1855	1.5268	.631	
.487	31/64+	.1863	1.5300 1.5394	. 633 . 641	
.490 .493	$^{31}_{64} + ^{1}_{2} -$	1909	1.5488	.649	
.495	1/2-	.1924	1.5551	. 654	
. 497	1/2-	.1940	1.5614 1.5708	.660	
. 500	1/2	.2376	1.7279	.808	
$.550 \\ .552$	35 ₆₄ + 35 ₆₄ +	.2393	1.7342	.814	
.556	9/16 —	.2428	1.7467	.825	
. 603	3964 —	.2856	1.8944	. 971	
.610	39/64	.2922	1.9164 1.9321	.994 1.010	
.615	39 ₆₄ + 5 ₈ -	3000	1.9415	1.020	
.625	5/8	.3068	1.9635	1.043	
.665	43/64 —	.3473	2.0892	1.181	
.727	47/64 —	.4151	2.2839 2.2997	$1.411 \\ 1.431$	
.732 .734	47/64 — 47/64	.4208	2.2997	1.439	
.735	4764	.4243	2.3091	1.443	
.740	47/64+	.4301	2.3248	$1.462 \\ 1.490$	
.747 .750	3/4 - 3/4	.4383	$2.3468 \\ 2.3562$	1.502	
		.5027	2.5133	1.709	
.800 .811	51 ₆₄ + 13 ₁₆ -	.5166	2.5478	1.756	
.851	27/32+	.5688	2.6735	1.934	
.865	55/64+	.5877	$2.7175 \\ 2.7489$	1.998 2.044	
.875	7/8	1177	2.8903	2.260	
.920	⁵⁹ / ₆₄ —	.6648	3.1102	2.617	
.990	1	,,,,,,			

Approximate Weights of Round Edge Flats Per Lineal Foot

Width Overall,			THICI	KNESS,	INCHI	ES	
Inches	1/8	3/16	1/4	5/16	3/8	7/16	1/2
1/2	.206	.303	.398	.488			
%6	.232		1				
5/8	.259	.383	111	1			
11/16	.285	.423			1		
3/4	.312	.463		1		_	
10	n I		L		-111		
13/16	.338	. 503		1		1.13	
7/8	.365	.542	1110			1.22	
15/16 1	.392	.582				1.31	1.49
1	.418	.622	.823	1.02	1.22	1.41	1.59
11/16	.445	. 662	.876	1.09	1.30	1.50	1.70
11/8		.702	.929	1.15	1.38	1.59	1.81
13/16		.742	.982	1.22	1.46	1.69	1.91
11/4		.781	1.04	1.29	1.54	1.78	2.02
15/16		.821	1.09	1.36	1 00	4 0	
13/8		.861	1.14	1.42	1.62	1.87	2.13
17/16		.901	1.14	1.42	1.70	1.97	2.23
1½		.941	1.19	1.49	1.78	2.06	2.34
LINE TO THE		, , ,	1.20	1.00	1.85	2.15	2.44
19/16		.981	1.30	1.62	1.94	2.24	2.55
15/8		1.02	1.35	1.69	2.01	2.34	2.66
111/16		1.06	1.41	1.76	2.09	2.43	2.76
13/4		1.10	1.46	1.82	2.17	2.52	2.87
113/16			1.51	1.89	2.25	2.62	2.98
17/8			1.57	1.95	2.33	2.71	3.08
115/16			1.62		2.41	2.80	3.19
2						2.89	3.29

Approximate Weights of Round Edge Flats—Continued Per Lineal Foot

Width	THICKNESS, INCHES								
Overall, Inches	9/16	5/8	11/16	3/4	13/16	7/8	15/16	1	
1/2 9/16 5/8 11/16									
3/4 13/16 7/8 15/16	,								
1 1½6 1½8 1¾6 1¼	2.14 2.26	2.36 2.49	2.57	2.79 2.94					
15/6 13/8 17/6 11/2	2.38 2.49 2.61 2.73	2.62 2.75 2.89 3.02	2.81 3.01 3.16 3.30	3.10 3.26 3.42 3.58					
19_{16} 15_{8} 1^{11}_{16} 13_{4}	2.85 2.97 3.09 3.21	3.15 3.29 3.42 3.55	3.45 3.60 3.74 3.89	3.74 3.90 4.06 4.22	4.55	4.87	5.20	5.52	
113/16 17/8 115/16 2	3.33 3.45 3.57 3.69	3.68 3.82 3.95 4.08	4.03 4.18 4.33 4.47	4.38 4.54 4.70 4.86	4.72 4.89 5.07 5.24	5.06 5.25 5.43 5.62	5.40 5.60 5.79 5.99	5.73 5.94 6.15 6.37	

Approximate Weights of Round Edge Flats—Continued Per Lineal Foot

Width	1117		тніск	NESS,	INCHE	S	Los.
Overall, Inches	1/8	3/16	1/4	5/16	3/8	7/16	1/2
							1.3
$2\frac{1}{16}$			1.73	2.15	2.57	2.99	3.40
$2\frac{1}{8}$			1.78	2.22	2.65	3.08	3.51
$2\frac{3}{16}$			1.83	2.29	2.73	3.17	3.61
21/4			1.89	2.35	2.81	3.27	3.72
			((-)	101			11
25/16			1.94	2.42	2.89	3.36	3.83
23/8			1.99	2.49	2.97	3.45	3.93
$2\frac{7}{16}$			2.04	2.55	3.05	3.55	4.04
$2\frac{1}{2}$			2.10	2.62	3.13	3.64	4.14
25/8			0.00	0 ==	0.00	0.00	4 00
			2.20	2.75	3.29	3.82	4.36
$\frac{2\frac{3}{4}}{2\frac{7}{8}}$		• • • • • •	2.31	2.88	3.45	4.01	4.57
3		• • • • • •	2.42	3.02	3.61	4.20	4.78
3			2.52	3.15	3.77	4.38	4.99
31/8		- 70	2.63	3.28	3.93	4.57	5.21
31/4			2.74	3.42	4.09	4.75	5.42
33/8			2.84	3.55	4.25	4.94	5.63
31/2			2.95	3.68	4.40	5.13	5.84
0/2			2.00	0.00	1.10	0.10	0.01
35/8				4.700	4.56	5.31	6.06
33/4					4.72	5.50	6.27
37/8					4.88	5.68	6.48
4					5.04	5.87	6.69
							-10
41/8							6.91
41/4							7.12
43/8							7.33
41/2							7.54
45/8							7.76
43/4							7.97

Approximate Weights of Round Edge Flats—Concluded Per Lineal Foot

Width	THICKNESS, INCHES								
Overall, Inches	9/16	5/8	11/16	3/4	13/16	7/8	15/16	1	
21/16	3.81	4,22	4.62	5.02	5.41	5.80	6.19	6.58	
	3.93	4.35	4.76	5.18	5.58	5.99	6.39	6.79	
$\frac{2\frac{1}{8}}{2\frac{3}{16}}$	4.05	4.48	4.91	5.34	5.76	6.18	6.59	7.00	
$\frac{2^{7}16}{2^{1}4}$	4.17	4.61	5.06	5.49	5.93	6.36	6.79	7.22	
2/4	1.11	1.01	0.00	0.10	0.00	0.00	0.11		
25/6	4.29	4.75	5.20	5.65	6.10	6.55	6.99	7.43	
23/8	4.41	4.88	5.35	5.81	6.28	6.73	7.19	7.64	
27/16	4.53	5.01	5.49	5.97	6.45	6.92	7.39	7.85	
21/2	4.65	5.15	5.64	6.13	6.62	7.10	7.59	8.07	
May 1			716	-56	7.91				
25/8	4.89	5.41	5.93	6.45	6.97	7.48	7.99	8.49	
$2\frac{3}{4}$	5.12	5.68	6.22	6.77	7.31	7.85	8.39	8.92	
27/8	5.36	5.94	6.52	7.09	7.66	8.22	8.78	9.34	
3	5.60	6.21	6.81	7.41	8.00	8.59	9.18	9.77	
			1 (2)	EUT.			200		
$3\frac{1}{8}$	5.84	6.47	7.10	7.73	8.35	8.96	9.58	10.19	
$3\frac{1}{4}$	6.08	6.74	7.39	8.04	8.69	9.34	9.98	10.62	
33/8	6.32	7.00	7.69	8.36	9.04	9.71	10.38	11.04	
$3\frac{1}{2}$	6.56	7.27	7.98	8.68	9.38	10.08	10.77	11.47	
1				0.00	0 =0	10.45	11 17	11 00	
35/8	6.80	7.54	8.27	9.00	9.73	10.45		11.89 12.32	
33/4	7.04	7.80	8.56	9.32		10.82	11.57 11.97	12.74	
378	7.28	8.07	8.85	9.64	10.42 10.76	11.20 11.57	11.97 12.37	13.17	
4	7.51	8.33	9.15	9.96	10.70	11.07	12.31	10.17	
41/	7.75	8.60	9.44	10.27	11.11	11.94	12.76	13.59	
41/8	7.75	8.86	9.44	10.27	11.11	12.31	13.16		
4 1/4	8.23	9.13	10.02	10.91	11.40	12.68			
4 1/2	8.47	9.13	10.02	11.23	12.14	13.05		14.87	
4 1/2 4 5/8	8.71	9.66	10.61	11.55	12.49	13.43		15.29	
43/4	8.95	9.93	10.01	11.87	12.84		14.77	15.73	
1/4	0.00	0.00	20.00	21.0	22.01	20.01			
							,		

Approximate Weights of Round Edge Tires Per Lineal Foot

Face			INCHE	s	3 1.84 3 1.95 7 2.05		
Measure, Inches	1/8	3/16	1/4	5/16	3/8	7/16	1/2
1/2	.228	.353	.486	. 626			
9/16	.254	.393	. 539	. 692			
5/8	.281	.433	.592	.759			
.11/16	.307	.472	.645	.825			
3/4	.334	.512	.698	.892	1.09		
13/2	940		Pr - 1	050	1 10	1 40	
/16	.360	.552	.751	.958		1.40	
7/8 15/16	.387	. 592	.804		1.26	1.49	
	.413	.632	.858			1.58	
I was a second	.440	.072	.911	1.16	1.42	1.68	1.95
	167	.711	.964	1.23	1.50	1.77	9.05
- 10	.467	.751		1.29	1.58	1.86	2.16
-/0		.791	1.02	1.36	1.65	1.96	2.16
$1\frac{3}{16}$ $1\frac{1}{4}$.831	1.13	1.43	1.73	2.05	2.37
174		.001	1,10	1.40	1.75	2.00	2.31
15/6		.871	1.18	1.49	1.81	2.14	2.48
$1\frac{1}{16}$ $1\frac{3}{8}$.911	1.13	1.56	1.89	2.14	2.58
17/6		.950	1.29	1.63	1.97	2.33	2.69
$\frac{1}{16}$ $\frac{1}{2}$.990	1.34	1.69	2.05	2.42	2.79
172		. 550	1.01	1.05	2.00	2.42	2.19
19/6		1.03	1.39	1.76	2.13	2.51	2.90
15/8		1.07	1.45	1.83	2.21	2.61	3.01
111/16		1.11	1.50	1.89	2.29	2.70	3.11
13/4		1.15	1.55	1.96	2.37	2.79	3.22
1/4	TILL	1	2,00	2,00	3.01	2	3.22
113/16			1.61	2.02	2.45	2.89	3.33
1 7/8			1.66	2.09	2.53	2.98	3.43
115/16			1.71	2.16	2.61	3.07	3.54
2			1.77	2.22	2.69	3.16	3.65
STALL STREET LAND	1 9.0 7		1 1 1	7 97 1	31.1		
		-				-	

Approximate Weights of Round Edge Tires—Continued Per Lineal Foot

Face	THICKNESS, INCHES									
Measure, Inches	9/16	5/8	11/16	3/4	13/16	7/8	15/16	1		
1/						20				
1/2										
9/16 5/8										
11/16										
3/4										
/4	100									
13/16										
7/8										
15/16										
1										
				- 1-	- /-					
11/16										
11/8	2.58	2.91	3.24	3.58						
13/16 11/4	$\frac{2.58}{2.70}$	3.04	3.39	3.74						
1 /4	2.10	5.01	0.00	0.11			- 11			
15/16	2.82	3.17	3.53	3.90						
13/8	2.94	3.30	3.68	4.06						
17/16	3.06	3.44	3.82	4.22						
11/2	3.18	3.57	3.97	4.38						
	3.1									
19/16	3.30	3.70	4.12	4.53						
15/8	3.42	3.84	4.26	4.69						
111/16	3.54	3.97	4.41	4.85	5.48	5.95	6.43	6.92		
13/4	3.66	4.10	4.55	0.01	0.40	0.00	0.10	0.02		
113/16	3.78	4.23	4.70	5.17	5.65	6.14	6.63	7.14		
1 7/8	3.88	4.37	4.85	5.33	5.82	6.32	6.83	7.35		
115/16	4.02	4.50	4.99	5.49	6.00	6.51	7.03	7.56		
2	4.14	4.63	5.14	5.65	6.17	6.70	7.23	7.77		

Approximate Weights of Round Edge Tires—Continued Per Lineal Foot

	T						
Face Measure,	+ 1	1	THICI	KNESS,	INCHI	ES	
Inches	1/8	3/16	1/4	5/16	3/8	7/16	1/2
21/16			1.82	2.29	2.77	3.25	3.75
21/8			1.87	2.36	2.85	3.35	3.86
23/16			1.92	2.42	2.93	3.44	3.96
21/4			1.98	2.49	3.00	3.54	4.07
	3911						
$2\frac{5}{16}$			2.03	2.56	3.09	3.63	4.18
23/8			2.08	2.62	3.17	3.72	4.28
$27/_{16}$			2.14	2.69	3.25	3.82	4.39
21/2			2.19	2.76	3.35	3.91	4.49
					94		
25/8			2.30	2.89	3.49	4.09	4.71
$2\frac{3}{4}$			2.40	3.02	3.65	4.28	4.92
27/8			2.51	3.15	3.81	4.47	5.13
3			2.61	3.29	3.97	4.65	5.35
10.78					D		0.00
31/8			2.72	3.42	4.12	4.84	5.56
31/4			2.83	3.55	4.28	5.02	5.77
33/8			2.93	3.68	4.44	5.21	5.98
31/2			3.04	3.82	4.60	5.40	6.20
					2.00	0.10	0.20
35/8			3.15	3.95	4.76	5.58	6.41
33/4			3.25	4.08	4.92	5.77	6.62
37/8			3.36	4.22	5.08	5.95	6.83
4			3.47	4.35	5.24	6.14	7.05
DE WORLD TO	ALM					0.11	. 00
41/8							7.26
41/4							7.47
43/8							7.68
4½							7.90
							7.90
				0 1 0			

Approximate Weights of Round Edge Tires—Concluded Per Lineal Foot

Face			THI	CKNES	s, INC	HES		0.1
Measure, Inches	9/16	5/8	11/16	3/4	13/16	7/8	15/16	1
21/16	4.26	4.77	5.28	5.81	6.34	6.88	7.43	7.99
21/8	4.38	4.90	5.43	5.97	6.51	7.06	7.63	8.20
23/16	4.41	5.03	5.58	6.13	6.69	7.25	7.83	8.41
21/4	4.61	5.16	5.72	6.29	6.86	7.44	8.03	8.62
- 1	7.11	100	- 1	1 111	-11	101 66		
25/16	4.73	5.30	5.87	6.45	7.03	7.63	8.23	8.84
23/8	4.85	5.43	6.01	6.61	7.21	7.81	8.43	9.05
27/16	4.97	5.56	6.16	6.77	7.38	8.00	8.63	9.26
$2\frac{1}{2}$	5.09	5.70	6.31	6.93	7.55	8.18	8.83	9.47
A PROPERTY OF	-11		-				_	
25/8	5.33	5.97	6.60	7.24	7.90	8.56	9.22	9.90
23/4	5.56	6.24	6.89	7.56	8.24	8.93	9.62	10.32
27/8	5.81	6.50	7.18	7.88	8.59	9.30	10.02	10.75
3	6.05	6.77	7.47	8.20	8.93	9.67	10.42	11.17
THE PARTY								
31/8	6.29	7.03	7.77	8.52	9.28	10.04		11.60
31/4	6.53	7.30	8.06	8.84	9.62	10.42	11.22	12.02
33/8	6.77	7.56	8.35	9.16	9.97	10.79	11.62	12.45
31/2	7.00	7.83	8.64	9.48	10.31	11.16	12.01	12.87
	-	-11					17/10-	
35/8	7.24	8.10	8.94	9.79	10.66	11.53	12.41	13.30
33/4	7.48	8.36	9.23	10.11	11.00	11.90	12.81	13.72
37/8	7.72	8.63	9.52	10.43	11.35	12.28	13.21	14.15
4	7.96	8.89	9.81	10.75	11.69	12.65	13.61	14.57
							11	
41/8	8.20	9.16	10.11	11.07	12.04	13.02	14.00	
41/4	8.44	9.42	10.40	11.39	12.38	13.39	14.40	1
43/8	8.68	9.69	10.70	11.71	12.73	13.76	14.80	15.85
41/2	8.92	9.95	10.99	12.03	13.07	14.13	15.20	16.27
272				9 9				
	,							

Decimals of a Foot for Each 1/64th Inch

Inch	0"	1"	2"	3"	4"	5"	6"	7"	8"	9"	10"	11"
0	.0	.0833	. 1667	. 2500	. 3333	. 4167	. 5000	. 5833	. 6667	.7500	.8333	.9167
1/64	.0013	.0846	.1680	. 2513	.3346	.4180	.5013	. 5846	.6680	.7513	.8346	.9180
1/12	.0026	.0859	.1693	.2526	.3359	.4193	. 5026	.5859	.6693	.7526	.8359	.9193
3/64			.1706									
1/16	.0052	.0885	.1719	. 2552	. 3385	.4219	. 5052	. 5885	. 6719	.7552	. 8385	.9219
5/64	.0065	.0898	. 1732	. 2565	.3398	.4232	. 5065	.5898	. 6732	.7565	. 8398	.9232
3/32	.0078	.0911	.1745	.2578	.3411	.4245	.5078	.5911	.6745	.7578	.8411	.9245
7/64	.0091	.0924	.1758	. 2591	.3424	.4258	.5091	.5924	.6758	.7591	.8424	.9258
1/8			.1771									
					100							
9/64	.0117	.0951	.1784	. 2617	. 3451	.4284	. 5117	. 5951	.6784	.7617	.8451	.9284
5/82	.0130	.0964	.1797	.2630	.3464	.4297	. 5130	.5964	.6797	.7630	.8464	.9297
11/64	.0143	.0977	.1810	.2643	.3477	.4310	.5143	.5977	.6810	.7643	.8477	.9310
3/16	.0156	.0990	.1823	.2656	.3490	.4323	.5156	. 5990	. 6823	.7656	.8490	.9323
13/64	.0169	. 1003	.1836	. 2669	. 3503	.4336	. 5169	. 6003	.6836	.7669	.8503	.9336
7/32	.0182	.1016	.1849	.2682	.3516	.4349	.5182	.6016	. 6849	.7682	.8516	.9349
15/64	.0195	.1029	.1862	.2695	.3529	.4362	.5195	.6029	.6862	.7695	.8529	.9362
1/4	.0208	.1042	. 1875	.2708	.3542	.4375	. 5208	. 6042	.6875	.7708	.8542	. 9375
17/4	.0221	1055	1888	9791	3555	1388	5991	6055	6000	7791	OFFE	0200
9,82	.0234	1068	.1901	2734	3568	4401	5234	6068	6901	7734	8568	0401
19/64	.0247	.1081	.1914	.2747	3581	4414	5247	6081	6914	7747	8581	0414
5/16	.0260	.1094	.1927	.2760	.3594	.4427	.5260	.6094	.6927	7760	8594	9427
100.00			11				•					
21/64	.0273	.1107	.1940	.2773	. 3607	.4440	. 5273	.6107	. 6940	.7773	.8607	.9440
11/82	.0286	.1120	.1953	.2786	. 3620	.4453	.5286	.6120	.6953	.7786	.8620	.9453
23/64	.0299	.1133	. 1966	.2799	. 3633	.4466	.5299	.6133	. 6966	.7799	.8633	.9466
3/8	.0312	.1146	. 1979	.2812	.3646	.4479	.5312	.6146	. 6979	.7812	.8646	.9479
25/64	. 0326	. 1159	. 1992	. 2826	. 3659	4492	. 5326	.6159	. 6992	.7826	.8659	.9492
13/32	.0339	.1172	. 2005	. 2839	.3672	4505	. 5339	6172	7005	.7839	.8672	9505
27/64	.0352	.1185	. 2018	. 2852	.3685	4518	. 5352	.6185	7018	.7852	.8685	9518
7/16 .	.0365	1198	. 2031	.2865	. 3698	4531	.5365	6198	7031	7865	8698	9531
29/64	.0378	1211	2044	2878	3711	4544	5378	6211	7044	7878	8711	9544
15/32	.0391	1224	2057	2891	3724	4557	5391	6224	7057	7891	8724	9557
81/64	0404	1237	2070	2904	3737	4570	5404	6237	7070	7904	8737	9570
1/2	.0417	1250	2083	2917	3750	4583	5417	6250	7083	7917	8750	9583

Decimals of a Foot for Each 1/64th Inch Concluded

Inch	0"	1"	2"	3"	4"	5"	6"	7"	8"	9"	10"	11"
1/2					. 3750							
33/64	.0430	.1263	.2096	. 2930	.3763	4596	.5430	.6263	.7096	.7930	.8763	.9596
17/82	0443	1276	.2109	.2943	.3776	4609	.5443	.6276	.7109	.7943	.8776	.9609
35/64	0456	1289	.2122	.2956	.3789	4622	.5456	.6289	.7122	.7956	.8789	.9622
9/16	.0469	.1302	.2135	. 2969	.3802	4635	.5469	.6302	.7135	.7969	.8802	.9635
				77								
87/64	.0482	.1315	.2148	. 2982	.3815	,4648	. 5482	. 6315	.7148	.7982	.8815	.9648
19/32	.0495	.1328	.2161	.2995	.3828	4661	. 5495	.6328	.7161	.7995	.8828	.9661
39/64	.0508	.1341	.2174	.3008	.3841	.4674	.5508	. 6341	.7174	.8008	.8841	.9074
5/8	.0521	.1354	.2188	.3021	.3854	.4688	. 5521	.6354	.7188	.8021	.8854	.9088
				000	2005	4701	5594	0207	7901	9024	2267	0701
41 64	.0534	.1367	.2201	.3034	.3867	.4701	. 5534	.0307	7914	2047	0000	0714
21/32	.0547	.1380	.2214	.3047	.3880 .3893	4714	. 5547	6202	7997	2080	8803	0797
43/64	.0560	.1393	.2227	. 3060	.3906	4740	. 5500	6406	7940	2073	8006	9740
11/16	.0573	. 1406	.2240	.3073	. 3900	.4740	. 5575	.0400	. 1240	.0010	.0000	.0110
45.7	0500	1410	9952	2088	.3919	4753	5586	6419	7253	8086	.8919	.9753
45/64	0500	1429	2266	3000	.3932	4766	5599	6432	7266	.8099	.8932	.9766
23/32 47/64	0619	1445	2270	3119	.3945	4779	5612	6445	.7279	.8112	.8945	.9779
3/4	0625	1458	2202	3125	.3958	4792	.5625	.6458	.7292	.8125	.8958	.9792
74												
49/64	0638	1471	. 2305	.3138	.3971	.4805	. 5638	.6471	.7305	.8138	.8971	.9805
25/32	0651	1484	2318	.3151	.3984	.4818	.5651	.6484	.7318	.8151	.8984	.9818
51 64	0664	1407	2331	3164	3997	.4831	. 5664	.6497	.7331	.8164	.8997	.9831
13/16	.0677	. 1510	.2344	.3177	.4010	.4844	.5677	.6510	.7344	.8177	.9010	.9844
710												
53/64	.0690	.1523	.2357	.3190	.4023	.4857	.5690	.6523	.7357	.8190	.9023	.9857
27/32	0703	1536	2370	.3203	.4036	.4870	.5703	.6536	.7370	.8203	.9036	.9870
55/64	0716	1540	2383	3216	.4049	.4883	.5716	.6549	.7383	.8216	.9049	.9883
7/8	.0729	. 1562	. 2396	.3229	.4062	.4896	.5729	. 6562	.7396	.8229	. 9062	.9896
								0==0	W400	0040	0070	0000
57/64	.0742	. 1576	.2409	.3242	.4076	.4909	.57.42	.6576	7409	.8242	.9076	.9909
29/32	.0755	.1589	.2422	. 3255	.4089	.4922	. 5755	.6589	7422	.8255	.9089	.9922
59/64	.0768	.1602	.2435	.3268	.4102	.4935	. 5768	6615	7440	8901	0115	.9935
15/16	.0781	1615	.2448	.3281	.4115	.4948	.5781	.0015	. 7448	.8281	.9113	.9948
41.	0.00	1000	0401	2004	4100	4061	5704	6620	7461	8204	9128	.9961
61 64	.0794	1628	.2461	3294	4128	4074	5807	6641	7474	8307	9141	.9974
31/32	.0807	1641	24/4	2200	4141	4005	5890	6654	7487	8320	9154	.9987
63/64	.0820	1.1054	.2487	. 3320	.4104	.4507	.0020	.0009	. 1 101	.0020	.0101	1.0000
1												
		1	1	1	1	F		1	1	1	7	

Decimals of an Inch for Each 1/64th Inch

½nds	1/4ths	Decimal	Frac- tion	1/32nds	1/64ths	Decimal	Frac- tion
1 2	1 2 3 4	.015625 .03125 .046875 .0625	1/16	17 18	33 34 35 36	.515625 .53125 .546875 .5625	9/16
3 4	5 6 7 8	.078125 .09375 .109375 .125	1/8	19 20	37 38 39 40	.578125 .59375 .609375 .625	5/8
5 6	9 10 11 12	.140625 .15625 .171875 .1875	3/16	21 22	41 42 43 44	.640625 .65625 .671875 .6875	11/16
7 8	13 14 15 16	.203125 .21875 .234375 .250	1/4	23 24	45 46 47 48	.703125 .71875 .734375 .750	3/4
9	17 18 19 20	. 265625 . 28125 . 296875 . 3125	5/16	25 26	49 50 51 52	.765625 .78125 .796875 .8125	13/16
11 12	21 22 23 24	.328125 .34375 .359375 .375	3/8	27 28	53 54 55 56	.828125 .84375 .859375 .875	7/8
13 14	25 26 27 28	.390625 .40625 .421875 .4375	7/16	29	57 58 59 60	.890625 .90625 .921875	15/16
15 16	29 30 31 32	.453125 .46875 .484375 .500	1/2	31 32	61 62 63 64	. 953125 . 96875 . 984375	1

Comparison of Gauges In Decimal Parts of an Inch

						United
		D: .		70 111 1	Q4	States
		Birming-	American	British	Standard	Standard
		ham Wire	Wire	Imperial	Birming-	for Sheet
Gauge	J. & I.	(B.W.G.)	or	Standard	ham Sheet	Tor Sheet
Number	Gauge	also known	Browne &	Wire	and Hoop	and Plate
A GIIIDOI		as Stubs	Sharpe	(S. W. G.)	(B. G.)	Iron and
	-	Iron Wire	Z.I.J. P			Steel
				700		.500
0000000	.4900			.500 .464		.46875
000000	.4615		.580000	.404		.4375
00000	.4305	.500	.516500	.432		.40625
0000	.3938	.454	.460000	.400	.5000	.375
000	.3625	.425	.409642	.372	.4452	34375
00	.3310	.380	.364796	.348		.3125
0	.3065	.340	.324861	.324	.3964	28125
1	.2830	.300	.289297	.300		.265625
2	.2625	.284	.257627	.276	.3147	.25
2 3	.2437	.259	.229423	.252	.2804	.234375
4	.2253	.238	.204307	.232	.2500	.234375
5	.2070	,220	.181940	.212	.2225	.21875
5	.1920	.203	,162023	.192	.1981	.203123
7	1770	,180	.144285	.176	.1764	.1875
8	1620	.165	.128490	.160	.1570	.171875
9	1483	.148	.114423	.144	.1398	.15625
10	.1350	.134	.101897	.128	.1250	.140625
10	.1330	120	.090742	.116	.1113	.125
	.1205	.109	.080808	.104	.0991	.109375
12	.1055	.095	.071962	.092	.0882	.09375
13		.083	.064084	.080	.0785	.078125
14	.0800	.072	.057068	.072	.0699	.0703125
15		.065	.050821	.064	.0625	.0625
16	.0625	.058	.045257	.056	.0556	.05625
17	.0540	.049	.040303	.048	.0495	.05
18	.0475	.049	.035890	.040	.0440	.04375
19	.0410	.035	.031961	.036	.0392	.0375
20	.0348	.035	.028462	.032	.0349	.034375
21	.03175	.032	.025346	.028	.03125	.03125
22	.0286		.023572	.024	.02782	.028125
23	.0258	.025	.022372	.022	.02476	.025
24	.0230	.022	.017900	.020	.02204	.021875
. 25	.0204	.020	.017900	.018	.01961	.01875
26	.0181	.018			.01745	.0171875
27	.0173	.016	.014195	.0148	.015625	.015625
28	.0162	.014	.012641	.0136	.0139	.0140625
29	.0150	.013	.011257		.0123	0125
30	.0140	.012	.010025		.0110	.0109375
31	.0132	.010	.008928		.0098	.01015625
32	.0128	.009	.007950		.0087	.009375
33	.0118	.008	.007080		.0077	.00859375
34	.0104	.007	.006305		.0069	.0078125
35		.005	.005615		.0069	.00703125
36		.004	.005000		.0054	.006640625
37				.0068	.0048	.00625
38			003965		.0048	.00020
39			003531			
40			003144	.0048	1	
10	10010				1 37 10 -	based wlater

Birmingham Wire Gauge is used for No. 8, No. 9 and No. 10 sheared plates; also bands and hoops.

United States Standard Gauge is used for No. 11 sheared plates; also for Black Plates (Tin mill sizes). Tin plate is rolled to weight per base box.

J. & L. Gauge, which corresponds to Washburn & Moen Gauge, is used for all common wire products, unless otherwise specified.

Since the use of numbers to express thickness or size leads to confusion, decimal parts of an inch should be employed when fractions can not be used conveniently.

United States Standard Gauge for Sheet and Plate Iron and Steel

Number of Gauge	Approximate Thickness in Fractions of an Inch	Approxi- mate Thickness in Decimal parts of an Inch	Approximate Thickness in Millimeters	Square Foot in Pounds Avoirdu- pois, Iron	Weight per Square Foot in Pounds Avoirdu- pois, Steel	Square Meter in Kilo- grammes, Steel
0000000 000000 000000 0000 000 000 00 0		.5	12.70 11.91 11.11 10.32 9.53 8.73 7.94 6.75 6.35 5.95 5.56 4.76 4.37 3.97 3.57 3.57 3.18 2.78 2.38 1.98 1.79 1.43 1.27 1.11 953 8.73 7.94 7.14 635 635 6476 437 3.97 3.57 3.18 2.78 2.38 1.98 1.79 1.27 1.11 9.53 8.73 7.94 7.14 635 8.27 8.27 8.27 8.27 8.27 8.27 8.27 8.27	20. 18.75 17.50 16.25 15. 17.50 16.25 15. 12.50 11.25 10. 9.375 8.75 8.75 6.25 5.625 5.625 5.375 3.125 2.8125 2.25 2.1.75 1.375 1.125 1. 875 .6875 .6875 .625 5.528 5.528 5.534375 5.34375 5.34375 5.34375 5.34375 5.34375 5.34375	20.4 19.125 17.85 16.575 15.3 14.025 12.75 11.475 10.8375 10.2 9.5025 8.925 8.925 8.925 6.375 5.7375 5.1 4.4625 3.825 3.1875 2.86875 2.295 2.04 1.785 1.1475 1.02 1.53 1.4025 1.2175 1.1475 1.02 8925 765 70125 6375 57375 551 1.44625 44625 4375 551 1.4475 1.22 586875 2.356625 3.3875 5.31875 5.31875 5.31875 5.31875 5.31875 5.3286875 2.3288875 2.3298375 2.3298375	99.601 93.376 87.151 80.926 74.701 68.476 62.251 56.026 52.913 49.800 46.688 43.575 40.463 37.350 34.238 31.125 28.013 24.900 21.788 18.675 11.205 9.960 8.715 7.470 6.848 6.225 6.603 4.980 4.358 3.735 3.424 3.113 2.801 2.490 2.179 2.023 1.868 1.712 1.556 1.401 1.323
38	160	.00625	.159	.25	.255	1.245

The United States Standard Gauge was legalized by Act of Congress March 3, 1893, as a standard gauge for Sheet and Plate Iron and Steel.

Since the use of numbers to express thickness or size leads to confusion, decimal parts of an inch should be employed where fractions can not be used conveniently.

Birmingham Wire Gauge Equivalents in Inches

Corresponding Weights of Flat Rolled Steel

Gauge	Thickness,	Pounds	THICKNES	ss, inches	Pounds per Square
Number	Inches	Square Foot	Fractional	Decimal	Foot
0000	.454 .425 .380 .340	18.5232 17.34 15.504 13.872	1/2 15/22 1/6 13/22 3/8 11/22	.5 .46875 .4375 .40625 .375 .34375	$\begin{array}{c} 20.4 \\ 19.125 \\ 17.85 \\ 16.575 \\ 15.3 \\ 14.025 \end{array}$
1 2 3	.300 .284 .259	12.24 11.5872 10.5672	5 16 19 64 9 52 17 64 1 1 4 1 5 64	.3125 .296875 .28125 .265625 .25 .234375	12.75 12.1125 11.475 10.8375 10.2 9.5625
5 6 7 8	.238 .220 .203 .180 .165	8.976 8.2824 7.344 6.732	7,32 13,64 3,16 11,64	.21875 .203125 .1875 .171875	8.925 8.2875 7.65 7.0125 6.375
9 10 11 12	.148 .134 .120 .109	6.0384 5.4672 4.896 4.4472	5,52 9,64 1,8 7,64	.15625 .140625 .125 .109375	5.7375 5.1 4.4625
13 14 15 16	.095 .083 .072 .065	3.876 3.3864 2.9376 2.651	3/22 5/64 1/16	.09375 .078125 	3.1875
17 18 19 20	.058 .049 .042 .035	2.3664 1.9992 1.7136 1.428	864	.046875	1.9125
21 22 23 24	.032 .028 .025 .022	1.3056 1.1424 1.02 0.8976	1/22	.03125	1.275
25 26 27 28	.020 .018 .016 .014	$\begin{array}{c} 0.816 \\ 0.7344 \\ 0.6528 \\ 0.5712 \end{array}$	1/64	.015625	0.6375
29 30 31 32	.013 .012 .010 .009	0.5304 0.4896 0.408 0.3672		0070195	0.31875
33 34 35 36	.008 .007 .005 .004	$\begin{array}{c c} 0.3264 \\ 0.2856 \\ 0.2040 \\ 0.1632 \end{array}$			0.159375

U. S. and Metric Equivalents

INCHES IN METERS

Inches	Meters	Inches	Meters	Inches	Meters
1/64	.000396785	13/82	.01031875	51 64	.020240625
1/22	.00079375	27 64	.010715625	13/16	.0206375
3/64	.001190625	7/16	.0111125	53,64	.021034375
1/16	.0015875	29,64	.011509375	27,52	.02143125
564 .	.001984375	15/22	.01190625	E 5/64	.021828125
8/12	.00238125	81/64	.012303125	7/8	.022225
764	.002778125	1/2	.0127	57/64	.022621875
1/8	.003175	83.64	.013096875	29/32	.02301875
%61	.003571875	17/12	.01349375	59/64	.023415625
5/12	.00396875	35/64	.013890625	15/16	.0238125
11/64	.004365625	9/16	.0142875	61 64	.024209375
3/16	.0047625	37/64	.014684375	31/82	.02460625
13,64	.005159375	19/32	.01508125	63/64	.025003125
7/82	.00555625	39/64	.015478125		
15/64	.005953125	5/8	.015875		
1/4	.00635	41/64	.016271875		
17/64	.006746875	21/52	.01666875		
9/82	.00714375	43,64	.017065625		
1964	.007540625	11/16	.0174625	100	
5/16	.0079375	45,64	.017859375		
21/64	.008334375	23/32	.01825625	10	
11/12	.00873125	. 47/64	.018653125	9.1	
23,64	.009128125	3/4	.01905	7-0	
3/8	.009525	49/64	.019446875		
25/64	.009921875	25,52	.01984375		

U. S. and Metric Equivalents Continued

INCHES IN METERS

Inches	Meters	Inches	Meters	Inches	Meters	Inches	Meters
1	.0254	26	.6604	51	1.2954	76	1.9304
2	.0508	27	.6858	52	1.3208	77	1.9558
3	.0762	28	.7112	53	1.3462	78	1.9812
4	.1016	29	.7366	54	1.3716	79	2.0066
5	.127	30	.762	55	1.397	80	2.032
6	.1524	31	.7874	56	1.4224	81	2.0574
7	.1778	32	.8128	57	1.4478	82	2.0828
8	.2032	33	.8382	58	1.4732	83	2.1082
9	.2286	34	.8636	59	1.4986	84	2.1336
10	.254	35	.889	60	1.524	85	2.159
11	.2794	36	.9144	61	1.5494	86	2.1844
12	.3048	37	.9398	62	1.5748	87	2.2098
13	.3302	38	.9652	63	1.6002	- 88	2.2352
14	.3556	39	.9906	64	1.6256	89	2.2606
15	.381	40	1.016	65	1.651	90	2.286
16	.4064	41	1.0414	66	1.6764	91	2.3114
17	.4318	42	1.0668	67	1.7018	92	2.3368
18	.4572	43	1.0922	68	1.7272	93	2.3622
19	.4826	44	1.1176	69	1.7526	94	2.3876
20	.508	45	1.143	70	1.778	95	2.413
21	.5334	46	1.1684	71	1.8034	96	2.4384
22	.5588	47	1.1938	72	1.8288	97	2.4638
23	.5842	48	1.2192	73	1.8542	98	2.4892
24	.6096	49	1.2446	74	1.8796	99	2.5146
25	.635	50	1.27	75	1.905	100	2.540

U. S. and Metric Equivalents Continued

MILLIMETERS IN INCHES

	1	11		11	1	11	
Mm.	Inches	Mm.	Inches	Mm.	Inches	Mm.	Inches
1	0.0394	26	1.0236	51	2.008	76	2.992
2	0.0788	27	1.063	52	2.047	77	3.0314
3	0.1182	28	1.102	53	2.0865	78	3.0708
4	0.1575	29	1.141	54	2.126	79	3.11
5	0.197	30	1.181	55	2.165	80	3.1496
6	0.2363	31	1.22	56	2.2046	81	3.189
7	0.2756	32	1.26	57	2.244	82	3.2283
8	0.315	33	1.30	58	2.283	83	3.2677
9	0.3543	34	1.338	59	2.3227	84	3.307
10	0.3937	35	1.3778	60	2.362	85	3.3464
-11	0.433	36	1.417	61	2.401	86	3.3858
12	0.4724	37	1.4565	62	2.441	87	3,4252
13	0.512	38	1.496	63	2.48	88	3.4645
14	0.551	39	1.535	64	2.52	89	3.504
15	0.59	40	1.575	65	2.559	90	3.5433
16	0.63	41	1.614	66	2.598	91	3.5826
17	0.669	42	1.653	67	2.6378	92	3.622
18	0.7086	43	1.6928	68	2.677	93	3.6614
19	0.748	44	1.732	69	2.7165	94	3,7007
20	0.7874	45	1.7715	70	2.7559	95	3.74
21	0.8267	46	1.811	71	2.7952	96	3.779
22	0.866	47	1.85	72	2.8346	97	3.819
23	0.9055	48	1.89	73	2.874	98	3.858
24	0.945	49	1.929	74	2.9134	99	3.8976
25	0.984	50	1.968	75	2.9527	100	3.937

U. S. and Metric Equivalents Continued

MILES IN KILOMETERS

Miles	Kilometers	Miles	Kilometers	Miles	Kilometers	Miles	Kilometers
1	1.609321	26	41.842346	51	82.075371	76	122.308396
2	3.218642	27	43.451667	52	83.684692	77	123.917717
3	4.827963	28	45.060988	53	85.294013	78	125.527038
4	6.437284	29	46.670309	54	86.903334	79	127.136359
5	8.046605	30	48.27963	55	88.512655	80	128.74568
6	9.655926	31	49.888951	56	90.121976	81	130.355001
7	11.265247	32	51.498272	57	91.731297	82	131.964322
8	12.874568	33	53.107593	58	93.340618	83	133.573643
9	14.483889	34	54.716914	59	94.949939	84	135.182964
10	16.09321	35	56,326235	60	96.55926	85	136.792285
11	17.702531	36	57,935556	61	98.168581	86	138.401606
12	19.311852	37	59.544877	62	99,777902	87	140.010927
13	20.921173	38	61.154198	63	101.387223	88	141.620248
14	22.530494	39	62.763519	64	102.996544	89	143.229569
15	24.139815	40	64.37284	65	104.605865	90	144.83889
16	25.749136	41	65.982161	66	106.215186	91	146.448211
17	27.358457	42	67.591482	67	107.824507	92	148.057532
18	28.967778	43	69.200803	68	109.433828	93	149.666853
19	30.577099	44	70.810124	69	111.043149	94	151.276174
20	32.18642	45	72.419445	70	112.65247	95	152.885495
21	33.795741	46	74.028766	71	114.261791	96	154.494816
22	35.405062	47	75.638087	72	115.871112	97	156.104137
23	37.014383	48	77.247408	73	117,480433	98	157.713458
24	38.623704	49	78.856729	74	119.089754	99	159.322779
25	40.233025	50	80.46605	75	120.699075	100	160.9321

U. S. and Metric Equivalents Continued

FEET IN METERS

Feet	Meters	Feet	Meters	Feet	Meters	Feet	Meters
1	.3048	26	7.9248	51	15.5448	76	23.1648
2	.6096	27	8.2296	52	15.8496	77	23.4696
3	.9144	28	8.5344	53	16.1544	78	23.7744
4	1.2192	29	8.8392	54	16.4592	79	24.0792
5	1.524	30	9.144	55	16.764	80	24.384
6	1.8288	31	9.4488	56	17.0688	81	24.6888
7	2.1336	32	9.7536	57	17.3736	82	24.9936
8	2.4384	33	10.0584	58	17.6784	83	25.2984
9	2.7432	34	10.3632	59	17.9832	84	25.6032
10	3.048	35	10.668	60	18.288	85	25.908
11	3.3528	36	10.9728	61	18.5928	86	26.2128
12	3.6576	37	11.2776	62	18.8976	87	26.5176
13	3.9624	38	11.5824	63	19.2024	88	26.8224
14	4.2672	39	11.8872	64	19.5072	89	27.1272
15	4.572	40	12.192	65	19.812	90	27.432
16	4.8768	41	12.4968	66	20.1168	91	27.7368
17.	5.1816	42	12.8016	67	20.4216	92	28.0416
18	5.4864	43	13.1064	68	20.7264	93	28.3464
19	5.7912	44	13.4112	69	21.0312	94	28.6512
20	6.096	45	13.716	70	21.336	95	28.956
21	6.4008	46	14.0208	71	21.6408	96	29.2608
22	6.7056	47	14.3256	72	21.9456	97	29.5656
23	7.0104	48	14.6304	73	22,2504	98	29.8704
24	7.3152	49	14.9352	74	. 22.5552	99	30.1752
25	7.62	50	15.24	75	22.86	100	30.48

U. S. and Metric Equivalents Continued

METERS IN FEET

Meters	Feet	Meters	Feet	Meters	Feet	Meters	Feet
1	3.2809	26	85.3034	51	167.3258	76	249.3483
2	6.5618	27	88.5843	52	170.6067	77	252.6292
3	9.8427	28	91.8652	53	173.8876	78	255.9101
4	13.1236	29	95.1461	54	177.1685	79	259.191
5	16.4045	30	98.427	55	180.4494	80	262.4719
6	19.6854	31	101.7079	56	183.7303	81	265.7528
7	22.9663	32	104.9888	57	187.0112	82	269.0337
8	26.2472	33	108.2697	58	190.2921	83	272.3146
9	29.5281	34	111.5506	59	193.573	84	275.5955
10	32.809	35	114.8315	60	196.8539	85	278.8764
11	36.0899	36	118.1124	61	200.1348	86	282.1573
12	39.3708	37	121.3933	62	203.4157	87	285.4362
13	42.6517	38	124.6742	63	206.6966	88	288.7191
14	45.9326	39	127.9551	64	209.9775	89	292.
15	49.2135	40	131.236	65	213.2584	90	295.2809
16	52.4944	41	134.5169	66	216.5393	91	298.5618
17	55.7753	42	137.7978	67	219.8202	92	301.8427
18	59.0562	43	141.0787	68	223.1011	93	305.1236
19	62.3371	44	144.3596	69	226.382	94	308.4045
20	65.618	45	147.6405	70	229.6629	95	311.6854
21	68.8989	46	150.9214	71	232.9438	96	314.9663
22	72.1798	47	154.2023	72	236.2247	97	318.2472
23	75.4607	48	157.4832	73	239.5056	98	321.5281
24	78.7416	49	160.7641	74	242.7865	99	324.809
25	82.0225	10/2	164.045	75	246.0674	100	328.0899

U. S. and Metric Equivalents Continued

SQUARE FEET IN SQUARE METERS

Square Feet	Square Meters	Square Feet	Square Meters	Square Feet	Square Meters	Square Feet	Square Meters
1	.0929	26	2.4154	51	4.7379	76	7.0604
2	.1858	27	2.5083	52	4.8308	77	7.1533
3	.2787	28	2.6012	53	4.9237	78	7.2462
4	.3716	29	2.6941	54	5.0166	79	7.3391
5	.4645	30	2.787	55	5.1095	80	7.432
6	. 5574	31	2.8799	56	5.2024	81	7.5249
7	. 6503	32	2.9728	57	5.2953	82	7.6178
8	.7432	33	3.0657	58	5.3882	83	7.7107
9	.8361	34	3.1586	59	5.4811	84	7.8036
10	.929	35	3.2515	60	5.574	85	7.8965
11	1.0219	36	3.3444	61	5.6669	86	7.9894
12	1.1148	37	3.4373	62	5.7598	87	8.0823
13	1.2077	38	3.5302	63	5.8527	88	8.1752
14	1.3006	39	3.6231	64	5.9456	89	8.2681
15	1.3935	40	3.716	65	6.0385	90	8.361
16	1.4864	41	3.8089	66	6.1314	91	8.4539
17	1.5793	42	3.9018	67	6.2243	92	8.5468
18	1.6722	43	3.9947	68	6.3172	93	8.6397
19	1.7651	44	4.0876	69	6.4101	94	8.7326
20	1.858	45	4.1805	70	6.503	95	8.8255
21	1.9509	46	4.2734	71	6.5959	96	8.9184
22	2.0438	47	4.3663	72	6.6888	97	9.0113
23	2.1367	48	4.4592	73	6.7817	98	9.1042
24	2.2296	49	4.5521	74	6.8746	99	9.1971
25	2.3225	50	4.645	75	6.9675	100	9.29

U. S. and Metric Equivalents Continued

SQUARE METERS IN SQUARE FEET

Square Meters	Square Feet	Square Meters	Square Feet	Square Meters	Square Feet	Square Meters	Square Feet
1	10.764	26	279.872	51	548.979	76	818.087
2	21.528	27	290.636	52	559.744	77	828.851
3	32,293	28	301.40	53	570.508	78	839.615
4	43,057	29	312.165	54	581.272	79	850.38
-	53.821	30	322.929	55	592.036	80	861.144
6	64.586	31	333.693	56	602.8	81	871.908
7	75.35	32	344.458	57	613.565	82	882.673
8	86.114	33	355.222	58	624.329	83	893.437
9	96.879	34	365.986	59	635.094	84	904.207
10	107.643	35	376.75	60	645.858	85	914.965
11	118.407	36	387.545	61	656,622	86	925.73
12	129.172	37	398.279	62	667.387	87	936.494
13	139.936	38	409.043	63	678.151	88	947.258
14	150.7	39	419.808	64	688.915	89	958.023
15	161.464	40	430.572	65	699.679	90	968.787
16	172.229	41	441.336	66	710.444	91	979.551
17	182.993	42	452.10	67	721.208	92	990.316
18	193.757	43	462.865	68	731.971	93	1001.08
19	204.522	44	473.629	69	742.736	94	1011.844
20	215.286	45	484.393	70	753.501	95	1022.608
21	226.05	46	495.158	71	764.265	96	1033.373
22	236.815	47	505.922	72	775.03	97	1044.137
23	247.579	48	516.686	73	785.794	98	1054.901
24	258.343	49	527.45	74	796.558	99	1065.666
25	269.107	50	538.215	75	807.322	100	1076.43
					4 10	100	

U. S. and Metric Equivalents Continued

KILOGRAMMES PER SQUARE CENTIMETER IN POUNDS PER SQUARE INCH

Kgs. per Sq. Cm.	Lbs. per Sq. In.						
1	14.223	3.6	51.203	6.2	88.183	8.8	125.162
1.1	15.645	3.7	52.625	6.3	89.605	8.9	126.585
1.2	17.068	3.8	54.047	6.4	91.027	9	128.007
1.3	18.490	3.9	55.470	6.5	92.450	9.1	129.429
1.4	19.912	4	56.892	6.6	93.872	9.2	130.852
1.5	21.335	4.1	58.314	6.7	95.294	9.3	132.274
1.6	22.757	4.2	59.737	6.8	96.716	9.4	133.696
1.7	24.179	4.3	61.159	6.9	98.139	9.5	135.119
1.8	25.601	4.4	62.581	7	99.561	9.6	136.541
1.9	27.024	4.5	64.004	7.1	100.983	9.7	137.963
2	28.446	4.6	65,426	7.2	102.406	9.8	139.385
2.1	29.868	4.7	67.848	7.3	103.828	9.9	140.808
2.2	31.291	4.8	68.270	7.4	105.250	10	142.230
2.3	32.713	4.9	69.693	7.5	106.673	10.1	143.652
2.4	34.135	5	71.115	7.6	108.095	10.2	145.074
2.5	35.558	5.1	72.537	7.7	109.517	10.3	146.497
2.6	36.980	5.2	73.960	7.8	110.939	10.4	147.919
2.7	38.402	5.3	75.382	7.9	112.362	10.5	149.341
2.8	39.824	5.4	76.804	8	113.784	10.6	150.764
2.9	41.247	5.5	78.227	8.1	115.206	10.7	152.186
3	42.669	5.6	79.649	8.2	116.629	10.8	153.608
	44.091	5.7	81.071	8.3	118.051	10.9	155.030
-	45.514	5.8	82.493	8.4	119.473	11	156.453
	46.936	5.9	83.916	8.5	120.896	11.1	157.875
3.4	48.358	6	85.338	8.6	122.318	11.2	159.297
3.5	49.781	6.1	86.760	8.7	123.740	11.3	160.720

U. S. and Metric Equivalents Continued

POUNDS PER SQUARE INCH IN KILOGRAMMES PER SQUARE CENTIMETER

Lbs. per Sq. In.	Kgs. per Sq. Cm.						
1	.0703	- 26	1.828	51	3.5857	76	5.3434
2	.1406	27	1.8983	52	3.656	77	5.4138
3	.2109	28	1.9686	53	3.7263	78	5.4841
4	. 2812	29	2.0389	54	3.7966	79	5.5544
5	.3515	30	2.1092	55	3.8669	80	5.6247
6	.4218	31	2.1795	56	3.9373	81	5.695
7	.4921	32	2.2498	57	4.0076	82	5.7653
8	. 5624	33	2.3202	58	4.0779	83	5.8356
9	. 6327	34	2.3905	59	4.1482	84	5.9059
10	.70309	35	2.4608	60	4.2185	85	5.9762
11	.7734	36	2.5311	61	4.2888	86	6.0465
12	.8437	37	2.6014	62	4.3591	87	6.1168
13	.9140	38	2.6717	63	4.4294	88	6.1872
14	.9843	39	2.7420	64	4.4997	89	6.2575
15	1.0546	40	2.8123	65	4.5700	90	6.3278
16	1.1249	41	2.8826	-66	4.6404	91	6.3981
17	1.1952	42	2.9529	67	4.7107	92	6.4684
18	1.2655	43	3.0232	68	4.781	93	6.5387
19	1.3358	44	3.0936	69	4.8513	94	6.609
20	1.4062	45	3.1639	70	4.9216	95	6.6793
21	1.4765	46	3.2342	71	4.9919	96	6.7496
22	1.5468	47	3.3045	72	5.0622	97	6.8199
23	1.6171	48	3.3748	73	5.1325	98	6.8902
24	1.6874	49	3.4451	74	5.2028	99	6.9606
25	1.7577	50	3.5154	75	5.2731	100	7.0309

U. S. and Metric Equivalents Continued

POUNDS IN KILOGRAMMES

Lbs.	Kgs.	Lbs.	Kgs.	Lbs.	Kgs.	Lbs.	Kgs.
1	.453593	26	11.793418	51	23.133243	76	34.473068
2	.907186	27	12.247011	52	23.586836	77	34.926661
3	1.360779	28	12.700604	53	24.040429	78	35.380254
4	1.814372	29	13.154197	54	24.494022	79	35.833847
5	2.267965	30	13.60779	55	24.947615	80	36.28744
6	2.721558	31	14.061383	56	25.401208	81	36.741033
7	3.175151	32	14.514976	57	25.854801	82	37.194626
8	3.628744	33	14.968569	58	26.308394	83	37.648219
9	4.082337	34	15.422162	59	26.761987	84	38.101812
10	4.53593	35	15.875755	60	27.21558	85	38.555405
11	4.989523	36	16.329348	61	27.669173	86	39.008998
12	5.443116	37	16.782941	62	28.122766	87	39.462591
13	5.896709	38	17.236534	63	28.576359	88	39.916184
14	6.350302	39	17.690127	64	29.029952	89	40.369777
15	6.803895	40	18.14372	65	29.483545	90	40.82337
16	7.257488	41	18.597313	66	29.937138	91	41.276963
17	7.711081	42	19.050906	67	30.390731	92	41.730556
18	8.164674	43	19.504499	68	30.844324	93	42.184149
19	8.618267	44	19.958092	69	31.297917	94	42.637742
20	9.07186	45	20.411685	70	31.75151	95	43.091335
21	9.525453	46	20.865278	71	32.205103	96	43.544928
22	9.979046	47	21.318871	72	32.658696	97	43.998521
23	10.432639	48	21.772464	73	33.112289	98	44.452114
24	10.886232	49	22.226057	74	33.565882	99	44.905707
25	11.339825	50	22.67965	75	34.019475	100	45.3593

U. S. and Metric Equivalents Concluded

KILOGRAMMES IN POUNDS

Kgs.	Lbs.	Kgs.	Lbs.	Kgs.	Lbs.	Kgs.	Lbs.
1	2.205	26	57.320	51	112.435	76	167.550
2	4.409	27	59.524	52	114.639	77	169.754
. 3	6.614	28	61.729	53	116.844	78	171.959
4	8.818	29	63.933	54	119.048	79	174.163
5	11.023	30	66.138	55	121.253	80	176.368
6	13.228	31	68.343	56	123.458	81	178.573
7	15.432	32	70.547	57	125.662	82	180.777
8	17.637	33	72.752	58	127.867	83	182.982
9	19.841	34	74.956	59	130.071	84	185.186
10	22.046	35	77.161	60	132.276	85	187.391
11	24.251	36	79.366	61	134.481	86	189.596
12	26.455	37	81.570	62	136.685	87	191.800
13	28.660	38	83.775	63	138.890	88	194.005
14	30.864	39	85,979	64	141.094	89	196.209
15	33.069	40	88.184	65	143.299	90	198.414
16	35.274	41	90.389	66	145.504	91	200.619
17	37.478	42	92.593	67	147.708	.92	202.823
18	39.683	43	94.798	. 68	149.913	93	205.028
19	41.887	44	97.002	69	152.117	94	207.232
20	44.092	45	99.207	70	154.322	95	209.437
21	46.297	46	101.412	71	156.527	96	211.642
22	48.501	47	103.616	72	158.731	97	213.846
23	50.706	48	105.821	73	160.936	98	216.051
24	52.910	49	108.025	74	163.140	99	218.255
25	55.115	50	110.230	75	165.345	100	220.460

Manufacturers' Standard Specifications for Structural and Boiler Steel

Standard specifications governing the chemical and physical properties of structural and boiler steel, as adopted by the Association of American Steel Manufacturers.—Revised April 22, 1919.

Structural Steel

Grades

 These specifications cover three classes of structural steel, namely:

Class A steel, to be used for railway bridges and ships.

Class B steel, to be used for buildings, highway bridges, train sheds and similar structures.

Class C steel, to be used for structural rivets.

I. Manufacture

Process

2. Steel for Classes A and C shall be made by the open-hearth process. Steel for Class B may be made either by the open-hearth or by the Bessemer process.

II. Chemical Properties and Tests

Chemical Composition

3. The steel shall conform to the following requirements as to chemical composition:

Elements Considered	Class A	Class B	Class C
	Steel	Steel	Steel
Phosphorus, max., per cent: Basic open-hearth Acid open-hearth Bessemer. Sulphur, max., per cent	0.06	0.06 0.08 0.10	0.04 0.04 0.05

Ladle Analyses

4. To determine whether the material conforms to the requirements specified in section 3, an analysis shall be made by the manufacturer from a test ingot taken during the pouring of each melt. A copy of this analysis shall be given to the purchaser or his representative, if requested.

Check Analyses

5. A check analysis of Class A and Class C steel may be made by the purchaser from finished material representing each melt, in which case an excess of 25 per cent above the requirements specified in section 3 shall be allowed.

III. Physical Properties and Tests

Tension Tests

6. The steel shall conform to the following requirements as to tensile properties:

	THE PARTY NAMED IN		
Properties Considered	Class A Steel	Class B Steel	Class C Steel
Tensile strength, lbs. per sq. in. Yield point, minimum, lbs. per sq. in. Elongation in 8 in., minimum, per cent Elongation in 2 in., minimum,	1,400,000† tens. str.	55,000-65,000* 0.5 tens. str. 1,400,000† tens. str.	46,000-56,000 0.5 tens. str. 1,400,000 tens. str.
Per cent (Fig. 2)	22	22	

^{*} See section 8.

Yield Point

7. The yield point shall be determined by the drop of the beam of the testing machine.

Modification in Tensile Strength

8. Class B steel may have tensile strength up to 70,000 lbs. maximum, provided the elongation is not less than the percentage required for 65,000 lbs. tensile strength.

[†] See section 9.

Modifications in Elongation

- 9. (a) For material over ¾ inch in thickness, a deduction of 1 from the percentage of elongation in 8 inches specified for Classes A and B in section 6 shall be made for each increase of ⅓ inch in thickness above ¾ inch to a minimum of 18 per cent.
- (b) For material under $\frac{5}{16}$ inch in thickness, a deduction of 2.5 from the percentage of elongation in 8 inches specified for Classes A and B in section 6 shall be made for each decrease of $\frac{1}{16}$ inch in thickness below $\frac{5}{16}$ inch.

Character of Fracture

10. All broken tension test specimens shall show a silky fracture.

Bend Tests

- 11. (a) The test specimen for plates, shapes and bars shall bend cold through 180 deg. without fracture on the outside of the bent portion, as follows: For material ¾ inch and under in thickness, flat on itself; for material over ¾ inch up to 1¼ inches in thickness, around a pin the diameter of which is equal to 1½ times the thickness of the specimen; and for material over 1¼ inches in thickness, around a pin the diameter of which is equal to twice the thickness of the specimen.
- (b) The test specimen for pins and rollers shall bend cold through 180 deg. around a 1-inch pin without fracture on the outside of the bent portion.
- (c) A rivet rod shall bend cold through 180 deg. flat on itself without fracture on the outside of the bent portion.
- (d) Bend tests may be made by pressure or by blows.

Test Specimens

12. (a) Tension and bend test specimens shall be taken from the finished rolled or forged product, and shall not be annealed or otherwise treated, except as specified in section 13.

(b) Tension and bend test specimens for plates, shapes and bars, except as specified in paragraph (c), shall be of the full thickness of material as rolled, and with both edges milled to the form and dimensions shown in Fig. 1, or may have both edges parallel.

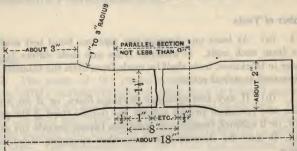
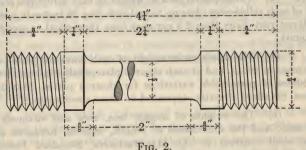


Fig. 1.

- (c) Tension and bend test specimens for plates and bars (except eye-bar flats) over 1½ inches in thickness or diameter may be turned or planed to a diameter or thickness of at least ¾ inch for a length of at least 9 inches.
- (d) Tension and bend test specimens for pins and rollers shall be taken parallel to the axis, 1 inch from the surface of the bar.
 Tension test specimens shall be of the form and dimensions shown in Fig. 2. Bend test specimens shall be 1 inch by ½ inch in section.



(e) Rivet bars shall be tested in full-size section as rolled.

Annealed Specimens

13. Test specimens for material which is to be annealed or otherwise treated before use, shall be cut from properly annealed or similarly treated short lengths of the full section of the piece.

Number of Tests

- 14. (a) At least one tension test and one bend test shall be made from each melt. If material from one melt differs \(^3\)\% inch or more in thickness, tests shall be made from both the thickest and the thinnest material rolled.
- (b) If any test specimen develops flaws, or if an 8-inch tension test specimen breaks outside the middle third of the gauge length, or if a 2-inch tension test specimen breaks outside the gauge length, it may be discarded and another specimen substituted therefor.
- (c) Material intended for fillers or ornamental purposes will not be subject to test.

IV. Permissible Variations in Weight and Gauge

Permissible Variations

- 15. (a) The sectional area or weight of each structural shape and of each rolled-edge plate up to and including 36 inches in width, shall not vary more than 2.5 per cent from theoretical or specified amounts.
- (b) The thickness or weight of each universal plate over 36 inches in width, and of each sheared plate, shall conform to the schedules of permissible variations for sheared plates, Manufacturers' Standard Practice, appended to these specifications.
- (c) The weights of angles, tees, zees and channels of bar sizes, and the dimensions of rounds, squares, hexagons and flats, shall conform to the Manufacturers' Standard Practice governing the allowable variations in size and weight of hot-rolled bars.

V. Finish

Finish

16. The finished material shall be free from injurious defects, and shall have a workmanlike finish.

Flange, brelart and bailer river

VI. Marking

Marking

17. The name of the manufacturer and the melt number shall be legibly marked, stamped or rolled upon all finished material, except that each pin and roller shall be stamped on the end. Rivet and lattice steel and other small pieces may be shipped in securely fastened bundles, with the above marks legibly stamped on attached metal tags. Test specimens shall have their melt numbers plainly marked or stamped.

VII. Inspection and Rejection

Inspection

18. The inspector representing the purchaser shall have free entry, at all times while work on the contract of the purchaser is being performed, to all parts of the manufacturer's works which concern the manufacture of the material ordered. The manufacturer shall afford the inspector, free of cost, all reasonable facilities to satisfy him that the material is being furnished in accordance with these specifications. All tests and inspection shall be made at the place of manufacture prior to shipment, and shall be so conducted as not to interfere unnecessarily with the operation of the works.

Rejection

19. Material which, subsequent to the above tests at the mills and its acceptance there, develops weak spots, brittleness, cracks or other imperfections, or is found to have injurious defects, may be rejected at the shop, and shall then be replaced by the manufacturer at his own cost.

Boiler Steel

Grades Transfer of the Control of th

1. There shall be three grades of steel for boilers, namely: Flange, firebox and boiler rivet.

I. Manufacture

Process

2. The steel shall be made by the open-hearth process.

II. Chemical Properties and Tests

Chemical Composition

3. The steel shall conform to the following requirements as to chemical composition:

Elements Considered	Flange Steel	Firebox Steel	Boiler Rivet Steel
Manganese, per cent Phosphorus, max., per cent:	0.30 to 0.60	0.30 to 0.50	0.30 to 0.50
Basic	0.04	0.035	0.04
Acid		0.04	0.04
Sulphur, max., per cent	0.05	0.04	0.045

Ladle Analyses

4. To determine whether the material conforms to the requirements specified in section 3, an analysis shall be made by the manufacturer from a test ingot taken during the pouring of each melt. A copy of this analysis shall be given to the purchaser or his representative.

Check Analyses

5. A check analysis may be made by the purchaser from a broken tension test specimen representing each plate as rolled, and this analysis shall conform to the requirements specified in section 3.

III. Physical Properties and Tests

Tension Tests

6. The steel shall conform to the following requirements as to tensile properties:

Properties Considered	Flange	Firebox	Boiler Rivet
	Steel	Steel	Steel
Tensile strength, lbs. per sq. in . Yield point, minimum, lbs. per sq. in		52,000-60,000 0.5 tens. str.	45,000-55,000 0.5 tens. str.
per cent	1,450,000*	1,450,000*	1,450,000
	tens. str.	tens. str.	tens. str.

^{*} See section 8.

Yield Point

7. The yield point shall be determined by the drop of the beam of the testing machine.

Modifications in Elongation

- 8. (a) For plates over $\frac{3}{4}$ inch in thickness, a deduction of 0.5 from the specified percentage of elongation will be allowed for each increase of $\frac{1}{8}$ inch in thickness above $\frac{3}{4}$ inch, to a minimum of 20 per cent.
- (b) For plates under 5% inch in thickness, a deduction of 2.5 from the percentage of elongation specified in section 6 shall be made for each decrease of 1% inch in thickness below 5% inch.

Bend Tests

- 9. (a) Cold-bend tests shall be made on the material as rolled.
- (b) Quench-bend test specimens, before bending, shall be heated to a light cherry red, as seen in the dark (about 1200 deg. F.), and quenched in water, the temperature of which is about 80 deg. F.

- (c) Specimens for cold-bend and quench-bend tests of flange and firebox steel shall bend through 180 deg. without fracture on the outside of the bent portion, as follows: For material ¾ inch and under in thickness, flat on themselves; for material over ¾ inch up to 1¼ inches in thickness, around a pin, the diameter of which is equal to the thickness of the specimen; and for material over 1¼ inches in thickness, around a pin, the diameter of which is equal to 1½ times the thickness of the specimen.
- (d) Specimens for cold-bend and quench-bend tests of boiler rivet steel shall bend cold through 180 deg. flat on themselves without fracture on the outside of the bent portion.
 - (e) Bend tests may be made by pressure or by blows.

Test Specimens

- 10. (a) Tension and bend test specimens for plates shall be taken from the finished product, and shall be of the full thickness of material as rolled. Tension test specimens shall be of the form and dimensions shown in Fig. 1. Bend test specimens shall be $1\frac{1}{2}$ inches to $2\frac{1}{2}$ inches wide, and shall have the sheared edges milled or planed.
- (b) The tension and bend test specimens for rivet bars shall be of the full-size section of material as rolled.

Number of Tests

- 11. (a) One tension, one cold-bend and one quench-bend test shall be made from each plate as rolled.
- (b) Two tension, two cold-bend and two quench-bend tests shall be made for each melt of rivet steel.
- (c) If any test specimen develops flaws, or if a tension test specimen breaks outside the middle third of the gauge length, it may be discarded and another specimen substituted therefor.

IV. Permissible Variations in Weight and Gauge

Permissible Variations

12. (a) The thickness or weight of each sheared plate shall conform to the schedule of permissible variations, Manufacturers' Standard Practice, appended to these specifications.

(b) The dimensions of rivet bars shall conform to the Manufacturers' Standard Practice governing allowable variations in the size of hot-rolled bars.

V. Finish

Finish

13. The finished material shall be free from injurious defects, and shall have a workmanlike finish.

VI. Marking

Marking

14. The melt or slab number, name of the manufacturer, grade, and the minimum tensile strength for its grade as specified in section 6 shall be legibly stamped on each plate. The melt or slab number shall be legibly stamped on each test specimen representing that melt or slab.

VII. Inspection and Rejection

Inspection

15. The inspector representing the purchaser shall have free entry, at all times while work on the contract of the purchaser is being performed, to all parts of the manufacturer's works which concern the manufacture of the material ordered. The manufacturer shall afford the inspector, free of cost, all reasonable facilities to satisfy him that the material is being furnished in accordance with these specifications. All tests and inspection shall be made at the place of manufacture prior to shipment, and shall be so conducted as not to interfere unnecessarily with the operation of the works.

Rejection

16. Material which, subsequent to the above tests at the mills and its acceptance there, develops weak spots, brittleness, cracks or other imperfections, or is found to have injurious defects, may be rejected at the shop, and shall then be replaced by the manufacturer at his own cost.

Manufacturers' Standard Practice

Permissible variations in weight and thickness of Sheared Plates. One cubic inch of Rolled Steel is assumed to weigh 0.2833 pound.

When Ordered to Weight Per Square Foot

The weight of each lot (*) in each shipment shall not vary from the weight ordered more than the amount given in the following table:

NOTE.—The weight per square foot of individual plates shall not vary from the ordered weight by more than 11% times amount given in this table.

3 mount given in this table to this table means all of the plates of each group width and group weight.

NOTE.—The above table applies to our rectangular plates. the

Manufacturers' Standard Practice

Permissible variations in weight and thickness of Sheared Plates. One cubic inch of Rolled Steel is assumed to weigh 0.2833 pound. When Ordered to Thickness

The thickness of each plate shall not vary more than 0.01 in, under that ordered. The overweight of each lot (†) in each shipment shall not exceed the amount given in the following table:

ES FOR	132 to 144 inches exclusive	19 17 13 13 11 8 8
PERMISSIBLE EXCESS IN AVERAGE WEIGHTS PER SQUARE FOOT OF PLATES FOR WIDTHS GIVEN, EXPRESSED IN PERCENTAGES OF NOMINAL WEIGHTS	120 to 132 inches exclusive	16 114 112 10 9 8 8 7 7
ARE FOOT	120 inches exclusive	112 110 8 8 8 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6
PER SQU	96 to 108 inches exclusive	6 0 0 0 0 0 0 4 0 0 0 0 0 0 0 0 0 0 0 0
WEIGHTS N PERCEN	84 to 96 inches exclusive	120 100 100 100 100 100 100 100 100 100
VERAGE IN	72 to 84 inches exclusive	4 5 0 0 8 7 6 7 4 4 8 5 70 70 70 70 70 70 70 70 70 70 70 70 70
CESS IN A	60 to 72 inches exclusive	
SIBLE EX	48 to 60 inches exclusive	0 0 0 0 0 0 4 4 0 0 0 0 0 10 10 10 10 10 10 10 10 10 10
PERMIS	Under 48 inches	သတင္က က 4 4 ယ ယ တ တ တ က် က် က် က် က်
	Ordered Thickness Inches	Under 16 15 to 36 excl. 15 to 15 excl. 15 to 16 excl. 17 to 10 excl. 17 to 10 excl. 17 to 10 excl. 18 to 10 excl. 10 over

+ The term "lot" applied to this table means all of the plates of each group width and group thickness. NOTE, -The above table applies to our rectangular plates.

Manufacturers' Standard Specifications for Concrete Reinforcement Bars Rolled From Billets

Standard specifications governing the chemical and physical properties of concrete reinforcement bars rolled from billets, as adopted by the Association of American Steel Manufacturers.—Revised April 21, 1914.

Manufacture

1. Steel may be made by either the open-hearth or Bessemer process. Bars shall be rolled from standard new billets.

The chemical and physical properties shall conform to the following limits. Chemical and Physical Properties 2.

	STRUCTURAL STEEL GRADE	URAL	INTERMEDIATE	SDIATE	HARD GRADE	RADE	-ploo
Properties Considered	Plain Bars	Deformed Bars	Plain Bars	Deformed	Plain. Bars	Deformed	Twisted
Phosphorus, maximum: Bessemer Open-hearth	.10	.10	.10	.10	.10	.10	.10
Ultimate tensile strength, pounds per square inch	55/70,000	55/70,000	55/70,000 70/85,000 70/85,000	70/85,000	80,000 min.	80,000 min.	Recorded
Yield point, minimum, pounds per	33,000	33,000	40,000	40,000	50,000	50,000	55,000
Elongation, per cent in 8", minimum	1,400,000	1,250,000	1,300,000	1,125,000	1,200,000	1,000,000	2 %
Cold bend without fracture: 1. S. 1. St. 180°d. = 3t. 180°d. = 3t. 180°d. = 3t. 180°d. = 2t.	1. S. 180°d. = 1t.	180°d. =1t.	180°d. = 2t.	180°d. = 3t.	180°d. = 3t.	180°d. =4t.	180°d. =2t.
Bars %" in diameter or thickness and over	$180^{\circ}d. = 1t. \ 180^{\circ}d. = 2t. \ 90^{\circ}d. = 2t. \ 90^{\circ}d. = 3t. \ 90^{\circ}d. = 3t. \ 180^{\circ}d. = 4t. \ 180^{\circ}d. = 3t.$	180°d. =2t.	90°d. =2t.	90°d. =3t.	90°d. = 3t.	90°d. =4t.	180°d. =3t.

The intermediate and hard grades will be used only when specified

Chemical Determinations

3. In order to determine if the material conforms to the chemical limitations prescribed in paragraph 2 herein, analysis shall be made by the manufacturer from a test ingot taken at the time of the pouring of each melt or blow of steel, and a correct copy of such analysis shall be furnished to the engineer or his inspector.

Wield Point and a method of the second and the second of t

4. For the purposes of these specifications, the yield point shall be determined by careful observation of the drop of the beam of the testing machine, or by other equally accurate method.

Form of Specimens

- 5. (a) Tensile and bending test specimens may be cut from the bars as rolled, but tensile and bending test specimens of deformed bars may be planed or turned for a length of at least 9 inches if deemed necessary by the manufacturer in order to obtain uniform cross-section.
- (b) Tensile and bending test specimens of cold-twisted bars shall be cut from the bars after twisting, and shall be tested in full size without further treatment, unless otherwise specified as in (c), in which case the conditions therein stipulated shall govern.
- (c) If it is desired that the testing and acceptance for cold-twisted bars be made upon the hot rolled bars before being twisted, the hot rolled bars shall meet the requirements of the structural steel grade for plain bars shown in this specification.

Number of Tests

6. (a) At least one tensile and one bending test shall be made from each melt of open-hearth steel rolled, and from each blow or lot of ten tons of Bessemer steel rolled. In case bars differing 3% inch and more in diameter or thickness are rolled from one melt or blow, a test shall be made from the thickest and thinnest material rolled. Should either of these test specimens develop

flaws, or should the tensile test specimen break outside of the middle third of its gauged length, it may be discarded and another test specimen substituted therefor. In case a tensile test specimen does not meet the specifications, an additional test may be made.

(b) The bending test may be made by pressure or by light blows.

Modification in Elongation for Thin and Thick Material

- 7. For bars less than V_6 -inch and more than 34-inch nominal diameter or thickness, the following modifications shall be made in the requirements for elongation:
- (a) For each increase of ½ inch in diameter or thickness above ¾ inch, a deduction of 1 shall be made from the specified percentage of elongation.
- (b) For each decrease of $\frac{1}{16}$ inch in diameter or thickness below $\frac{7}{16}$ inch, a deduction of 1 shall be made from the specified percentage of elongation.
- (c) The above modifications in elongation shall not apply to cold-twisted bars.

Number of Twists

8. Cold-twisted bars shall be twisted cold with one complete twist in a length equal to not more than twelve times the thickness of the bar.

Finish to and all the family and

9. Material must be free from injurious seams, flaws or cracks, and have a workmanlike finish.

Variation in Weight

10. Bars for reinforcement are subject to rejection if the actual weight of any lot varies more than 5% over or under the theoretical weight of that lot.

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